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U. S. DEPARTMENT OF THE INTERIOR
PROTOTYPE OIL SHALE LEASING PROGRAM

OIL SHALE TRACT C-b
ENVIRONMENTAL MONITORING REPORT
(June 1983 through November 1983)

Submitted to:

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By:

CATHEDRAL BLUFFS SHALE OIL COMPANY

TENNECO SHALE OIL COMPANY
OCCIDENTAL OIL SHALE, INC.

January 15, 1984

SHOUT
SHARE
IT

VOLUME II

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INTRODUCTION

Regular environmental reporting for Oil Shale Tract C-b during the interim monitoring period consists of six-month data reports submitted February 15, 1983, July 15, 1983, and January 15, 1984. Limited data analyses are included in the February 1983 and January 15, 1984 reports.

The Interim Monitoring Program was initiated in March 1982. The data reported here fulfill the environmental monitoring requirements specified for the interim monitoring period by the OSPO. Data are reported for the period of June 1983 to November 1983. Data stored in the computerized data base and summary tables presented in this report are correct to the best of our knowledge. Any errors found in previously reported data appear in the Data Corrections section.

Data not previously reported for dates prior to this report period are presented in the Supplemental Data Sections for meteorology, air quality, hydrology and lab analyses.

AIR QUALITY

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AIR QUALITY AND METEOROLOGY

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1.3 Air Quality and Meteorology

The Air Quality Monitoring Program has been developed to measure background levels of atmospheric gaseous and particulate constituents and meteorological processes which affect transport and diffusion.

The air quality monitoring network during the Interim Monitoring Period (shown on Figure 1.3-1) includes the following:

- One air quality trailer at Station AB23 that has been in continuous operation since September, 1974 (prior to the 2 year Baseline Program).
- One 60-meter meteorological tower located at Station AA23 (adjacent to air quality trailer AB23), also operational since September, 1974. Meteorological parameters are monitored at the 10-meter, 30-meter, and 60-meter levels.
- Weighing-bucket rain gauge at Station AB23.
- Weighing-bucket rain gauge at Station AD28 (leachate pile).

Parameters measured at these stations are listed in Table 1.3-1. Missing data codes for air quality and meteorology are listed in Table 1.3-2. These codes are used on the diurnal tables to explain reasons for instrument down time.

Six monthly data reports (June - November 1983) are included in this document. These contain all the basic data used for the summaries and analyses reported in the following sections.

All monitoring stations are referenced by their four-digit computer codes. A cross-reference of the computer code and station I.D. appear in Section 3.0 (Data Automation).

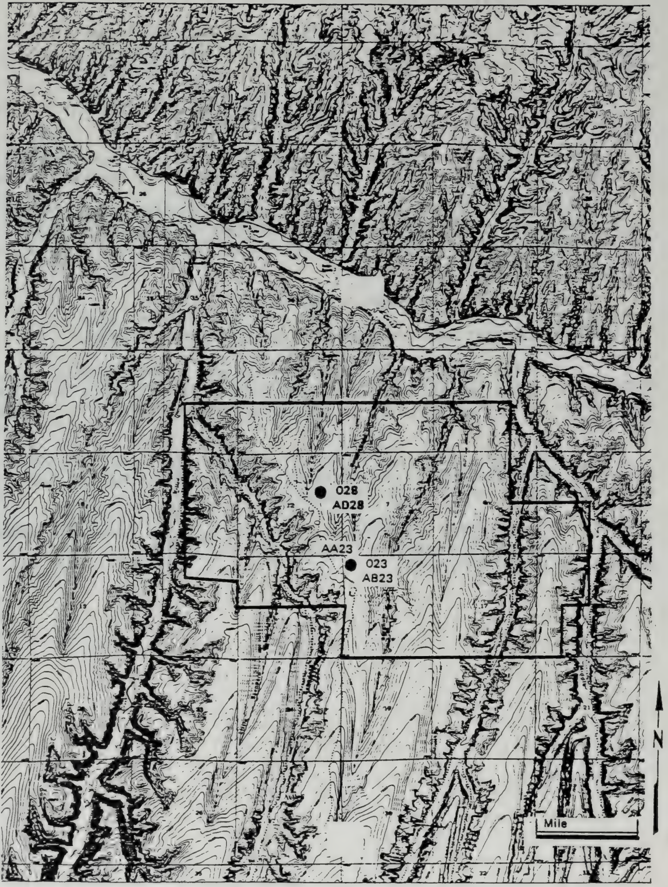
028
AD28
AA23
023
AB23
N
Mile

FIGURE 1.3-1

Ambient Air Quality
Interim Monitoring Network

TABLE 1.3-1

AIR QUALITY AND METEOROLOGICAL MEASUREMENTS

Station AA23		Sampling Frequency	Minimum Reporting Frequency
Tower:	(@ 10m, 30m, 60m)	5 sec	1 Hr Avg
	Wind Speed	5 sec	1 Hr Avg
	Wind Direction	5 sec	1 Hr Avg
	Temperature	5 sec	1 Hr Avg
	Delta Temp (60-10m)	5 sec	1 Hr Avg
Station AB23			
Trailer:	NO	5 sec	1 Hr Avg
	NO_x	5 sec	1 Hr Avg
	NO_2	NO_x-NO	1 Hr Avg
	O_3	5 sec	1 Hr Avg
	SO_2	5 sec	1 Hr Avg
	H_2S	5 sec	1 Hr Avg
	CO	5 sec	1 Hr Avg
	Barometric Pressure	5 sec	1 Hr Avg
	Solar Radiation	5 sec	1 Hr Avg
	Relative Humidity	5 sec	1 Hr Avg
	Particulates	24 Hr every 4 Days	24 Hr Avg
	Precipitation	Continuous	1 Hr Total
Station AD28			
	Precipitation	Continuous	1 Hr Total

TABLE 1.3-2

AIR QUALITY AND METEOROLOGICAL MISSING DATA CODES

Code	Description
CA	Calibration (calibration, system check)
CM	Calm (no wind direction when wind speed = 0
IM	Instrument Malfunction (instrument failures)
IN	Interference (CO_2 interference on sulfur data, SO interference in oxidant readings)
FO	Flame Out (on the GC - THC, HC, CH_4, CO)
LI	Local Interference (car nearby)
MT	Maintenance (changing paper, tape, charcoal)
NV	Not Visible (values were not within range of instrument, i.e., inversion heights may exist beyond the full scale of the Acoustic Radar)
OE	Operator Error (Field tech leaves switch in wrong position)
OR	Out for Repair (instrument removed from site with no replacement)
OS	Off Scale
PF	Power Failure (generator failure)
RF	Recording System Failure (chart jams, runs out, clock stop)
SE	Special Experiment
SR	System Removed
TR	Trace of Precipitation
TS	Temporary Monitoring Shutdown due to Operations Conflict
UN	Unlimited Ceiling (reported by NWS Stations)
	Blank (causes a space to be printed as in the beginning of a new month before a component starts)
VA	Variable Wind Direction
WR	Weather Related Malfunction (instrument freezes, temperature readings below instrumental detection)

AMBIENT
AIR QUALITY

1.3.1 Ambient Air Quality

The monitoring program for air quality was carried out in accordance with the provisions of the Interim Monitoring Plan approved by the Oil Shale Project Office (OSPO). During this reporting period ambient air station AB23 monitored gaseous constituents and particulate concentrations.

Station AB23 data are presented for June - November, 1983. Station AB26 was monitored through July 27, 1982. Data from this station are to be reported on an "as can" basis, and no data have been reported after March 1982. No data are reported in this document.

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TABLE 1.3.1-1

QUARTERLY SUMMARY (APRIL - JUNE 1983)

($\mu g/m^3$)

STATION AB23

Parameter	Average*	Maximum 24-hour Value	Date	Time	Maximum 8-hour Value	Date	Time	Maximum 3-hour Value	Date	Time	Maximum 1-hour Value	Date	Time
H_2S	1.8										14	06/09/83	1400
SO_2	1.8	5.9	06/13/83	2200				9.6	04/23/83	1000	10	(1)	
Particulate	14.0	27.9	05/26/83	0100									
O_3	78.9										135.4	06/02/83	1600
NO_x	0.3										21	04/22/83	0900
NO	0.6										11	04/22/83	0900
NO_2	0.2										6	04/06/83	2000
CO	52.8				80	(2)					100	(3)	

(1) Maximum 1-hour SO_2 concentration occurred three times: 04/23/83 @ 1000 and 1200; 04/24/83 @ 1600.

(2) Maximum 8-hour concentration occurred >5 times; see June sliding average table for times of occurrences.

(3) Maximum 1-hour CO concentration occurred two times: 05/04/83 @ 0800 and 05/10/83 @ 0800

* Arithmetic

TABLE 1.3.1-2

QUARTERLY SUMMARY (JULY - SEPTEMBER 1983)

($\mu g/m^3$)

STATION AB23

Parameter	Average	Maximum 24-hour			Maximum 8-hour			Maximum 3-hour			Maximum 1-hour		
		Value	Date	Time	Value	Date	Time	Value	Date	Time	Value	Date	Time
H_2S	1.4										8	(1)	
SO_2	2.5	10.8	08/15/83	2200				13.1	(2)		16	(3)	
Particulate	22.5	46.9	09/19/83										
O_3	70.7										119.7	08/06/83	1700
NO_x	1.2										6	(4)	
NO	0.7										2	(5)	
NO_2	0.6										6	(6)	
CO	41.2				80	07/28/83	0100				140	07/28/83	0800

(1) Maximum 1-hour H_2S concentration occurred 3 times: 08/30/83 @ 1400, 1700, and 09/30/83 @ 1500.

(2) Maximum 3-hour SO_2 concentration occurred 3 times: 08/14/83 @ 0600, 08/16/83 @ 0200, 09/26/83 @ 2400.

(3) Maximum 1-hour SO_2 concentration occurred 3 times: 07/28/83 @ 1600, 08/17/83 @ 1300 and 09/27/83 @ 0100.

(4) Maximum 1-hour NO_x concentration occurred 5 times: 08/17/83 @ 0900, 08/18/83 @ 1100, 08/19/83 @ 0100, 0200 and 2300.

(5) Maximum 1-hour NO concentration occurred >5 times; refer to monthly diurnal tables for times of occurrence.

(6) Maximum 1-hour NO_2 concentration occurred 5 times: 08/17/83 @ 0900, 08/18/83 @ 1100, 08/19/83 @ 0100, 0200, and 2300.

TABLE 1.3.1-3

AMBIENT ARITHMETIC GASEOUS AND PARTICULATE CONCENTRATIONS
STATION AB23
1983

CONSTITUENT (UG/M3)

MONTH	NO	NOX	NO2	O3	CO	SO2	H2S	PARTIC
JAN	0.9	3.0	1.9	66.4	32.7	2.6	2.1	1.8
FEB	0.1	1.3	1.1	71.9	36.0	2.1	1.3	2.2
MAR	0.9	1.1	0.6	68.8	50.5	2.1	0.8	5.2
APR	0.6	0.6	0.2	81.3	50.0	2.6	1.5	9.7
MAY	0.5	0.2	0.2	78.8	49.1	1.6	1.5	16.6
JUN	0.6	0.2	0.2	76.6	59.2	1.3	2.5	15.0
JUL	0.6	0.2	0.0	69.0	47.8	2.9	1.3	22.4
AUG	0.7	1.5	0.9	70.4	41.4	2.0	1.5	19.3
SEP	0.7	1.5	0.8	72.7	34.3	2.1	1.4	25.9
OCT	0.6	2.1	1.3	64.5	39.9	3.9	2.1	10.0
NOV	0.6	4.1	3.2	63.1	33.2	0.3	0.1	5.0
YEARLY AVERAGE	0.6	1.4	0.9	71.2	43.1	2.2	1.5	12.2

TABLE 1.3.1-3

MAXIMUM CONCENTRATIONS OF NO_x, 1983

Station AB23

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1-Hour Maximum												
Value ($\mu g/m^3$)	11	8	6	21	6	4	4	6	6	13	9	
Date	1/21/83	2/03/83	(1)	4/22/83	5/02/83	6/25/83	(2)	(1)	9/03/83	10/26/83	(1)	
Time (MST)	1200	1900		0900	0800	1800			1000	1000		
Wind Direction(DEG)	325	266	58	106	CALM	155	170		316	327		
Wind Speed (MPS)	1	1	1	1	CALM	4	2		1	1		

(1) Maximum concentration occurred >5 times: refer to monthly diurnal table.
(2) Maximum concentration occurred 2 times: 7/21/83 @ 2200 and 7/31/83 @ 0700.

TABLE 1.3.1-4

MAXIMUM CONCENTRATIONS OF NO, 1983

Station AB23

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1-Hour Maximum												
Value ($\mu g/m^3$)	4	*	4	11	*	*	*	*	*	4	*	
Date	(1)		3/07/83	4/22/83						10/13/83		
Time			2400	0900						0700		
Wind Direction(DEG)	319		171	106						107		
Wind Speed (MPS)	1		0	1						2		

* Monthly maximum concentration was <25% higher than average daily peaks for the month, and is therefore not reported on this table. Monthly diurnal tables report 1-hour peaks.

(1) Maximum concentration occurred 3 times: 1/20/83 @ 1200; 1/21/83 @ 1100 and 1200.

TABLE 1.3.1-5

MAXIMUM CONCENTRATIONS OF NO_2, 1983

Station AB23

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1-Hour Maximum												
Value ($\mu g/m^3$)	9	8	6	6	4	*	*	6	*	9	8	
Date	1/01/83	2/03/83	(1)	4/06/83	(2)			(3)		10/26/83	(3)	
Time	1300	1900		2000						1000		
Wind Direction(DEG)	320	266	72	19	CALM					327		
Wind Speed (MPS)	1	1	1	1	CALM					1		

* Monthly maximum concentration was <25% higher than average daily peaks for the month, and is therefore not reported on this table. Monthly diurnal tables report 1-hour peaks.

(1) Maximum concentration occurred 3 times: 3/09/83 @ 1700; 3/10/83 @ 1000; and 3/11/83 @ 0100.

(2) Maximum concentration occurred 2 times: 5/02/83 @ 0800; 5/08/83 @ 0900.

(3) Maximum concentration occurred >5 times: refer to monthly diurnal table.

TABLE 1.3.1-6

MAXIMUM CONCENTRATIONS OF O_3, 1983

Station AB23

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1-Hour Maximum												
Value (μg/m^3)	122	*	120	108	116	135	118	120	116	*	*	
Date	1/19/83		3/29/83	(1)	5/11/83	6/02/83	7/11/83	8/06/83	09/03/83			
Time (MST)	1600		1600		1100	1600	1700	1700	1400			
Wind Direction(DEG)	201		315	191	225	132	339	9	221			
Wind Speed (MPS)	4		1	7	7	1	2	3	5			

* Monthly maximum concentration was <25% higher than average daily peaks for the month and is therefore not reported on this table. Monthly diurnal tables report 1-hour peaks.

(1) Maximum concentration occurred 3 times: 4/18/83 @ 1100, 1200 and 1600.

TABLE 1.3.1-7

MAXIMUM CONCENTRATIONS OF CO, 1983

Station AB23

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1-Hour Maximum												
Value ($\mu g/m^3$)	100	70	90	*	100	*	140	80	*	*	60	
Date	(1)	2/17/83	3/16/83		(2)		7/28/83	8/01/83			(1)	
Time (MST)		0900	1000				0800	0700				
Wind Direction(DEG)	210	82	CALM		42		CALM	140				
Wind Speed (MPS)	1	1	CALM		1		0	2				
8-Hour Maximum												
Value ($\mu g/m^3$)	100	*	70	*	*	*	80	70	*	*	60	
Date	(1)		3/31/83				7/28/83	8/01/83			(1)	
Time (MST)			1500				0100	0100				
Wind Direction(DEG)	191		346				99	129				
Wind Speed (MPS)	1		3				2	2				

* Monthly maximum concentration was <25% higher than average daily peaks for the month, and is therefore not reported on this table. Monthly diurnal tables report 1-hour peaks. Monthly sliding average tables report 8-hour maximums.

(1) Maximum CO concentration occurred >5 times: refer to monthly diurnal table.

(2) Maximum CO concentration occurred 2 times: 5/04/83 @ 0800 and 5/10/83 @ 0800.

TABLE 1.3.1-8

MAXIMUM CONCENTRATIONS OF SO_2, 1983

Station AB23

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1-Hour Maximum												
Value ($\mu g/m^3$)	10.0	10.0	10.0	10.0	8	8	16	16	16	16	5	
Date	(1)	(2)	(1)	(4)	(6)	(7)	7/28/83	8/17/83	9/27/83	(10)	11/03/83	
Time (MST)							0800	1300	0100		1400	
Wind Direction(DEG)	184	327	332	222	20	81	CALM	279	185		244	
Wind Speed (MPS)	2	1	5	2	1	1	0	1	5		3	
3-Hour Maximum												
Value ($\mu g/m^3$)	9.6	9.6	10.5	9.6	7.9	6.1	8.7	13.1	13.1	14	*	
Date	1/05/83	2/04/83	(3)	4/23/83	5/24/83	6/14/83	(8)	(9)	9/26/83	10/12/83		
Time (MST)	1200	1000		1000	1800	1600			2400	0900		
Wind Direction(DEG)	196	337	CALM	222	295	311			203	320		
Wind Speed (MPS)	5	1	CALM	2	4	1			4	1		
24-Hour Maximum												
Value ($\mu g/m^3$)	7.7	7.2	9.1	5.9	5.5	4.7	6.5	10.8	10.5	9.9	*	
Date	1/06/83	2/03/83	3/16/83	(5)	5/23/83	6/28/83	7/26/83	8/15/83	9/26/83	10/11/83		
Time (MST)	1200	1600	1000		0800	1400	0200	2200	0700	1900		
Wind Direction(DEG)	218	335	CALM	205	CALM	290	138	150	145	66		
Wind Speed (MPS)	4	3	CALM	1	CALM	6	1	2	2	2		

* Monthly maximum concentration was <25% higher than average daily peaks for the month, and is therefore not reported on this table. Monthly sliding average tables report 3-hour and 24-hour peaks.

(1) Maximum 1-hour concentration occurred 5 times: refer to monthly table.
(2) Maximum 1-hour concentration occurred 3 times: 2/4/83 @ 1000, 1200 and 1500.
(3) Maximum 3-hour concentration occurred 2 times: 3/16/83 @ 1000 and 1300.
(4) Maximum 1-hour concentration occurred 3 times: 4/23/83 @ 1000, 1200 and 4/24/83 @ 1600.
(5) Maximum 24-hour concentration occurred 2 times: 4/22/83 @ 2100 and 4/24/83 @ 0600.
(6) Maximum 1-hour concentration occurred 8 times: refer to monthly table.
(7) Maximum 1-hour concentration occurred 2 times: 6/28/83 @ 1900 and 6/29/83 @ 0300.
(8) Maximum 3-hour concentration occurred 3 times: 7/27/83 @ 1100; 7/28/83 @ 0600, and 7/29/83 @ 1400.
(9) Maximum 3-hour concentration occurred 2 times: 8/14/83 @ 0600 and 8/16/83 @ 0200.
(10) Maximum 3-hour concentration occurred 2 times: 10/12/83 @ 0900 and 1300.

TABLE 1.3.1-9

MAXIMUM CONCENTRATIONS OF H_2S, 1983

Station AB23

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1-Hour Maximum												
Value (μg/m^3)	8	10	7	6	8	8	6	8	8	10	4	
Date	1/21/83	2/22/83	3/31/83	*	(1)	(2)	*	(3)	9/30/83 1500	(4)	11/14/83 1300	
Time (MST)	1000	1600	1400									
Wind Direction(DEG)	8	323	345	344	CALM				208		320	
Wind Speed (MPS)	0	1	4	2	CALM				5		3	

* Maximum concentration occurred >5 times: refer to monthly diurnal table.
(1) Maximum concentration occurred 2 times: 5/23/83 @ 0500, 5/24/83 @ 1200.
(2) Maximum concentration occurred >5 times: refer to monthly diurnal table.
(3) Maximum concentration occurred 2 times: 8/30/83 @ 1700 and 1900.
(4) Maximum concentration occurred 2 times: 10/02/83 @ 2000 and 2100.

TABLE 1.3.1-10

24-HOUR MAXIMUM CONCENTRATIONS OF PARTICULATES, 1983

Station AB23

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
24-Hour Maximum												
Value ($\mu g/m^3$)	2.8	5.3	18.6	19.6	27.9	27.2	34.3	27.8	46.9	18.3	18.5	
Uate	1/10/82	2/03/83	3/03/83	4/24/83	5/26/83	6/23/83	7/05/83	8/10/83	9/19/83	10/29/83	11/02/83	

\B23 PARTICULATE CONCENTRATION
DEC '82 - FEB '83

TOTAL % OF CALMS DISTRIBUTED (0.00%)
TOTAL NO. OF DAILY SAMPLES - 20

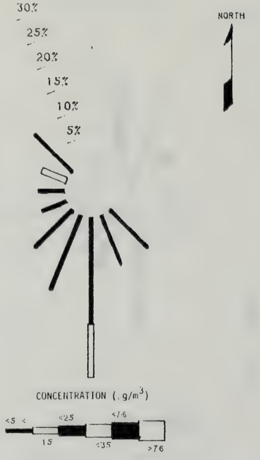

FIGURE 1.3.1-1

AB23 PARTICULATE CONCENTRATION
MAR '83 -- MAY '83

TOTAL % OF CALMS DISTRIBUTED (0.00%)
TOTAL NO. OF DAILY SAMPLES = 18

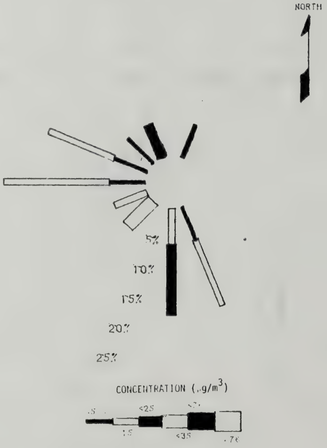

FIGURE 1.3.1-2

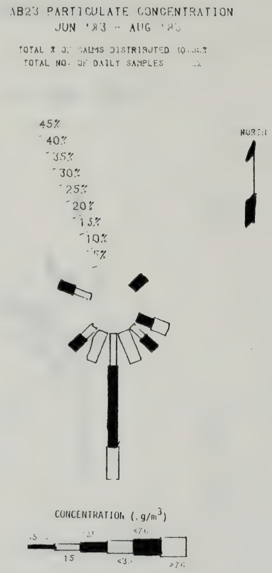
AB23 PARTICULATE CONCENTRATION
JUN '83 - AUG '8[illegible]
TOTAL % OF CALMS DISTRIBUTED [illegible]
TOTAL NO. OF DAILY SAMPLES [illegible]
45%
40%
35%
30%
25%
20%
15%
10%
5%
NORTH
CONCENTRATION (, g/m³)
.5
15
25
<3.
<76
>76

FIGURE 1.3.1-3

AB23 PARTICULATE CONCENTRATION
SEP '83 - NOV '83

TOTAL % OF CALMS DISTRIBUTED (0.00%)
TOTAL NO. OF DAILY SAMPLES - 22

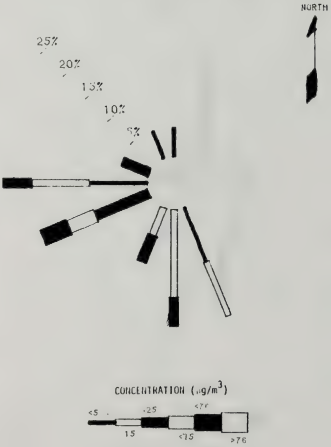

FIGURE 1.3.1-4

AB23 PARTICULATE CONCENTRATION
DEC '82 - NOV '83

TOTAL % OF CALMS DISTRIBUTED 10.00%
TOTAL NO. OF DAILY SAMPLES - 82

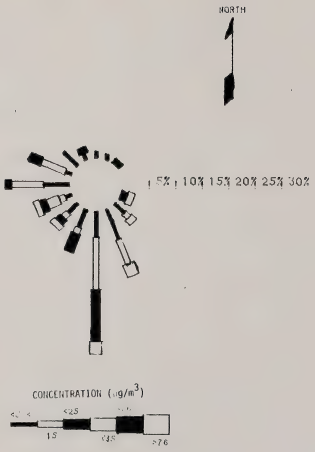

FIGURE 1.3.1-5

METEOROLOGY

1.3.2 Meteorology

During this reporting period meteorological parameters were monitored at Station AA23. Station AA23 is a 60-meter meteorological tower, colocated by air quality trailer AB23. Data are collected at the 10-meter, 30-meter, and 60-meter levels.

Monitoring at Station AB26 was discontinued on July 27, 1982. This station is required to be reported on an "as can" basis, and no data have been reported after March 1982. No data from Station AB26 are reported in this document.

CLIMATOLOGICAL
RECORDS

1.3.2.1 Climatological Records

This section presents low altitude climatological data for temperature, relative humidity, and direct solar radiation. The Colorado climatological data for temperature are also presented here. No data for snowfall and snow depth are available at report time.

Table No.	Description	Page No.
Table 1.3.2.1-1	Temperature and Relative Humidity, Station AA23	II-26
Table 1.3.2.1-2	Direct Solar Radiation at Station AB23	II-27
	Colorado Climatological Data	
Table 1.3.2.1-3	Minimum Temperature, Station WR01	II-28
Table 1.3.2.1-4	Maximum Temperature, Station WR01	II-29
Table 1.3.2.1-5	Minimum Temperature, Station WR02	II-30
Table 1.3.2.1-6	Maximum Temperature, Station WR02	II-31

Figure 1.3.2.1-1 shows monitoring stations presented in this section.

SAS

TABLE 1.3.2.1-1

TEMPERATURE AND RELATIVE HUMIDITY SUMMARY - 10 METER LEVEL
STATION AB23
1982-1983

MONTH	TEMPERATURE (DEGREES C)			RELATIVE HUMIDITY (%)		
	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE
DEC 1982	9.4	-20.0	-4.3	100.0	0.0	52.5
JAN 1983	13.3	-16.1	-1.8	98.0	2.0	38.7
FEB	14.4	-15.0	-1.2	100.0	24.0	65.4
MAR	17.8	-11.7	1.0	100.0	24.0	66.6
APR	18.3	-14.4	2.4	100.0	18.0	54.2
MAY	22.8	-3.3	7.9	100.0	12.0	52.8
JUN	27.8	0.6	14.2	100.0	20.0	51.7
JUL	31.1	4.4	19.2	96.0	20.0	47.1
AUG	32.8	9.4	20.2	97.0	29.0	52.0
SEP	30.6	-6.7	15.9	100.0	17.0	46.0
OCT	21.1	-4.4	8.4	100.0	20.0	53.6
NOV	20.0	-16.7	0.6	100.0	18.0	63.1

TABLE 1.3.2.1-2

Station AB23
Direct Solar Radiation

Month/ Year	Total Langleys For Month	Average Daylight Hr/Day	Daylight Hours/ Month	Uptime Daylight Hr/Mo.*	Daily Total/Day of The Month	
					Monthly Highest	Monthly Lowest
12/82	1503	10	310	81	259/4	100/9
1/83	4271	10	310	211	269/20	133/28
2/83	7190	11	308	308	398/24	131/14
3/83	701	11	372	24	386/2	286/1
4/83	10750	12	390	273	628/17	290/13
5/83	11562	14	434	339	675/7	247/16
6/83	15736	15	450	442	730/21	105/12
7/83	16918	15	465	440	737/4	280/27
8/83	15175	14	434	434	644/6	283/14
9/83	12641	13	390	390	560/5	133/30
10/83	8537	12	372	372	407/4	51/24
11/83	5005	10	300	300	291/4	44/8

* Channel "uptime" is given for reference only.

COLORADO CLIMATOLOGICAL DATA TABLE 1.3.2.1-3

STATION: WR01 MINIMUM TEMPERATURE (Deg. F) YEAR: 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-16	12	28		28	34	38	51	39			
2	-17	1	25		29	32	39	49	43			
3	-17	-1	20		26	31	47	51	44			
4	-6	-2	22		24	32	32	51	48			
5	9	14	28		28	33	33	50	37			
6	20	-	25		30	27	44	49	37			
7	20	7	17		24	31	53	53	33			
8	12	15	20		28	30	51	53	37			
9	10	19	18		34	35	53	53	43			
10	4	12	19		20	40	49	53	42			
11	5	-	23		30	40	36	56	33			
12	1	0	27		24	41	35	54	31			
13	-1	17	20		19	30	42	50	31			
14	2	25	30		20	26	55	48	32			
15	-	14	23	NO DATA	28	33	47	49	34			
16	1	22	13		32	36	36	48	29			
17	13	12	21		28	34	39	49	36			
18	19	18	22		23	36	45	49	37			
19	11	25	6		27	38	55	49	55			
20	5	10	7		22	34	55	48	15			
21	9	-	9		26	34	47	44	13			
22	14	0	18		28	38	49	40	16			
23	14	10	24		30	40	55	37	26			
24	6	12	12		30	51	44	37	39			
25	22	16	22		32	49	46	42	31			
26	10	21	10		32	44	53	43	30			
27	14	20	14		36	52	52	38	41			
28	17	29	15		35	49	49	43	28			
29	9		15		33	40	46	45	39			
30	12		20		42	39	47	46	41			
31	7		24		28		53	40				
AVG	7.0	13.1	19.3		28.3	37.0	46.0	47.4	34.7			

STATION: WR01

MAXIMUM TEMPERATURE (Deg. F)

YEAR: 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	21	27	43	47	50	57	77	89	87			
2	23	25	49	38	44	69	76	82	87			
3	28	28	54	49	49	65	77	80	86			
4	28	28	47	36	60	66	72	83	87			
5	39	31	43	33	57	69	75	84	72			
6	44	-	40	34	64	60	85	86	78			
7	49	32	44	39	49	65	93	88	81			
8	37	44	43	38	60	67	84	88	86			
9	47	39	42	41	71	74	79	89	77			
10	36	42	47	50	68	75	80	90	87			
11	40	-	58	55	74	73	75	91	81			
12	45	-	64	51	58	82	74	84	80			
13	40	51	54	40	56	46	81	78	79			
14	45	51	60	38	50	54	87	82	81			
15	-	35	39	42	48	65	93	85	84			
16	40	42	34	48	52	72	90	86	78			
17	38	44	38	53	46	79	86	86	82			
18	41	41	40	61	45	77	86	86	83			
19	35	52	32	56	51	82	91	86	78			
20	35	37	32	58	52	84	84	82	82			
21	37	-	30	59	55	81	91	78	53			
22	40	41	40	48	70	84	84	82	68			
23	35	45	41	52	62	83	81	85	74			
24	35	50	42	66	70	84	71	85	68			
25	37	52	41	68	74	72	81	84	70			
26	36	45	35	61	76	72	83	82	74			
27	39	28	36	55	76	67	77	84	77			
28	46	45	41	56	77	69	72	86	76			
29	37		35	51	86	77	81	82	72			
30	41		42	51	76	76	86	76	72			
31	36		58		66		89	84				
Avg.	37.7	39.8	43.4	49.1	61.0	71.5	82.0	84.3	78.0			

STATION: WR02 MINIMUM TEMPERATURE (Deg. F) YEAR: 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	-5	15	32	25	32	38	43	54	48			
2	-4	5	31	20	32	40	49	54	53			
3	-1	0	25	21	33	37	52	54	49			
4	9	1	25	16	32	38	39	56	52			
5	28	18	32	13	37	40	40	55	44			
6	25	3	30	8	34	35	53	53	40			
7	32	10	19	12	29	36	55	56	43			
8	19	15	29	18	30	36	55	58	57			
9	20	27	23	27	39	38	56	56	49			
10	5	15	26	21	27	42	53	55	50			
11	11	6	29	29	41	42	56	57	40			
12	11	8	31	30	33	39	42	57	40			
13	8	16	27	22	27	37	47	53	41			
14	10	31	32	12	27	32	47	54	49			
15	10	12	27	16	27	36	45	57	42			
16	12	24	17	20	33	44	45	52	39			
17	22	11	25	20	31	42	48	56	44			
18	24	20	26	24	26	45	53	57	42			
19	13	29	17	34	34	47	57	53	52			
20	11	19	16	33	28	43	55	52	23			
21	15	5	18	37	32	46	50	50	22			
22	21	9	20	30	34	43	53	47	27			
23	15	11	31	23	34	50	54	47	39			
24	6	15	16	32	38	51	49	45	50			
25	26	25	25	33	39	52	51	50	38			
26	7	25	21	28	40	45	56	48	38			
27	17	30	16	37	42	55	53	47	46			
28	19	32	31	37	43	48	50	49	38			
29	10		21	34	40	43	52	51	44			
30	21		25	36	45	47	53	51	44			
31	8		30		35		55	47				
AVG.	13.7	15.6	24.9	24.9	34.0	42.2	50.5	52.6	42.8			

COLORADO CLIMATOLOGICAL DATA

TABLE 1.3.2.1-6

STATION: WR02 MAXIMUM TEMPERATURE (Deg. F) YEAR: 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	29	28	52	42	48	63	80	80	87			
2	31	27	55	44	50	72	80	81	87			
3	32	32	54	41	54	70	75	82	86			
4	43	31	47	38	54	71	78	83	81			
5	45	34	42	37	62	65	89	86	79			
6	50	35	44	37	61	66	91	90	85			
7	49	38	45	40	61	72	87	90	85			
8	43	40	47	41	71	72	83	90	87			
9	43	43	45	52	65	70	80	90	83			
10	38	43	60	56	70	73	79	92	80			
11	45	38	61	50	68	78	78	90	82			
12	45	47	59	45	55	70	85	80	80			
13	49	49	58	43	55	58	85	83	83			
14	41	45	53	42	56	67	89	83	81			
15	50	42	38	47	55	75	86	86	80			
16	42	48	42	52	53	78	85	87	81			
17	46	48	42	59	47	80	87	85	83			
18	43	53	39	62	51	84	90	86	82			
19	34	49	37	56	53	82	87	83	76			
20	43	42	33	62	56	82	84	82	67			
21	39	42	43	62	65	83	87	84	69			
22	41	45	47	57	65	84	83	87	75			
23	35	45	43	64	72	84	77	83	72			
24	38	51	47	69	78	78	82	82	71			
25	34	49	37	63	77	76	84	83	77			
26	39	40	40	57	79	68	72	85	76			
27	50	44	42	54	82	67	76	88	73			
28	39	46	39	54	82	77	82	87	74			
29	42		46	53	80	77	88	76	75			
30	40		52	51	76	79	88	82	68			
31	40		57		65		82	85				
AVG.	41.2	41.9	46.6	51.0	63.4	74.0	83.2	84.9	78.8			

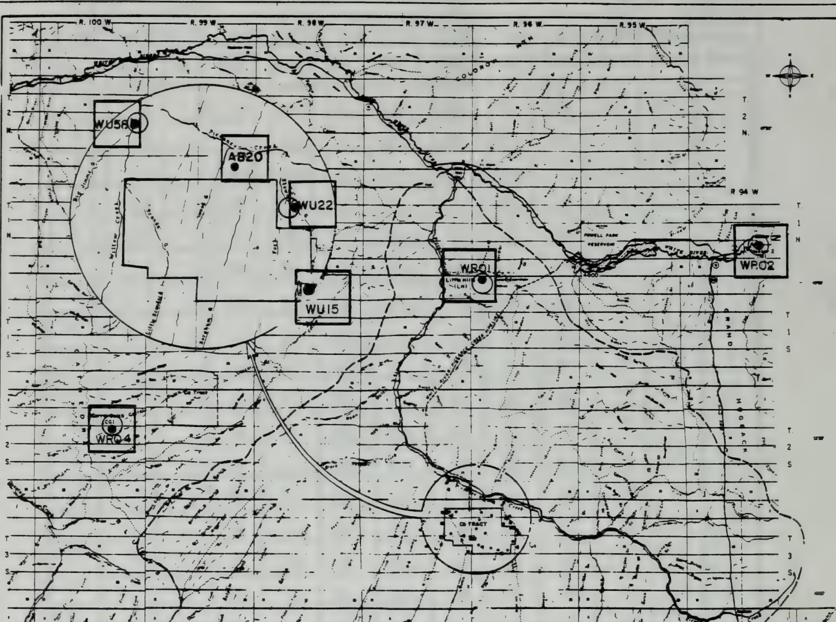
R. 100 W.
R. 99 W.
R. 98 W.
R. 97 W.
R. 96 W.
R. 95 W.
R 94 W
COLORADO
WU58
AB20
WU22
WU15
WR01
LITTLE HILLS (LH)
WR02
POWELL PARK RESERVOIR
WHITE RIVER
GRAND HOGBACK
WR04
CG1
C-b TRACT
WR03
ROAN
PLATEAU
WR07
East Middle Fork Parachute Creek (EMFPC)
WR05
WR06
East Fork Parachute Creek (EFPC)
KEY
HISTORICAL
PROPOSED
T. 2 N.
T. 1 N.
T. 1 S.
T. 2 S.
T. 3 S.
T. 4 S.
T. 5 S.
T. 6 S.
R. 101 W.
R. 100 W.
R. 99 W.
R. 98 W.
R. 97 W.
R. 96 W.
R. 95 W.
R. 94 W.
0
5 Miles

FIGURE 1.3.2.1-1
CLIMATOLOGICAL NETWORK OFF-TRACT

PRECIPITATION DATA

1.3.2.2 Precipitation

Precipitation was monitored at Stations AB23 and AD28 (leachate pile) during this reporting period.

USGS precipitation data are reported for Stations WR01, WR02, WR05, WR06 and WR07. Data for other stations are not available at report time.

Following is a list of tables included in this section:

Table No.	Description	Page No.
	Summary of Precipitation	
1.3.2.2-1	Station AB23	II-34
1.3.2.2-2	Station AD28	II-35
1.3.2.2-3	Station WR01, Little Hills	II-36
1.3.2.2-4	Station WR02, Meeker 2	II-37
1.3.2.2-5	Station WR05, JQS	II-38
1.3.2.2-6	Station WR06, EFP	II-39
1.3.2.2-7	Station WR07, EMFP	II-40

Figure 1.3.2.1-1 shows locations of monitoring stations presented in this section.

TABLE 1.3.2.2-1

SUMMARY OF PRECIPITATION: STATION AB23

(Measured with Weighing Rain Gauge)

(1982-1983) By Month

Item	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
1-Hour Maximum (cm)	.25	.05	(IM)	(IM)	(IM)	.04	.70	.51	.50	.30	.38	.03
Date	12/9/82	1/11/83				(1)	6/27/83	7/26/83	8/02/83	9/13/83	10/02/83	11/08/83
Time	2100	2000					1300 1400	1900	0900	0800	0900	1500 1700
24-Hour Maximum(cm)	.53	.11					1.40	1.20	.79	.59	.97	.14
Date	12/23/82	1/11/83					6/27/83	7/23/83	8/18/83	9/13/83	10/03/83	11/08/83
Total (cm)	2.49	.71*				(2)	4.82	3.37	2.04	.95	3.15	.37

(IM) Instrument malfunction.
* Data missing for month; this total may be incomplete.
(1) 1-hour maximum occurred 2 times: 5/24/83 @ 0900, 1000.
(2) Data <25% for month.

TABLE 1.3.2.2-2

SUMMARY OF PRECIPITATION: STATION AD28

(Measured with Weighing Rain Gauge)

(1982-1983) By Month

Item	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
1-Hour Maximum (cm)	.23	.10	.23	.05	.03	.46	.69	1.70	.43	.13	.71	.38
Date	(1)	1/7/83	2/19/83	3/4/83	(3)	5/21/83	6/25/83	7/22/83	8/14/83	(4)	10/13/83	11/08/83
Time		1300	0700	2100		2100	1800	1700	1300		2300	0200
24-Hour Maximum(cm)	.58	.33	1.37	.08	.05	1.70	1.98	2.03	.43	.28	1.40	1.78
Date	12/23/82	1/25/83	2/19/83	3/4/83	4/18/83	5/17/83	6/26/83	7/22/83	8/14/83	9/4/83	10/02/83	11/08/83
Total (cm)	1.79(2)	.86	(2) 3.02	.11	.08	6.76	7.47	4.27	2.48 (3)	1.03 (5)	3.68	4.11

(1) Maximum 1-Hour value occurred 2 times: 12/9/82 @ 2100, and 12/23/82 @ 2000.
(2) Total represents 86% of month. Instrument was not functioning for 14% of the total hours in month.
(3) Total represents 94% of month. Instrument was not functioning for 6% of the total hours in the month.
(4) Maximum 1-hour value occurred 2 times: 9/3/83 @ 2300, and 9/4/83 @ 0500.

STATION: WR01 PRECIPITATION (Inches) YEAR: 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				.25	.41							
2				T		.04		.03	.15			
3				.32		.06	.04					
4									.47			
5			.32			.05		T				
6			.03									
7		T			.11	.03	.08					
8		T	.17				.02		T			
9		.12		.31		.03						
10		.02					.09					
11		.03						.22				
12			.02	.34		.41		.41				
13						.42		.14				
14		.10	.11									
15			.31					.24	T			
16			.03		.21							
17	T	T	.01		1.01			.08				
18	.03		.11		.06			.16				
19		.31	.04	.05	.23			.07	.02			
20		.12	.03		.06			.10	.02			
21				.05			.10					
22	.03			.06	.16		.07					
23	.01		.10	.01			.88					
24			.04			.10	.16		.07			
25	.13		.12			.18						
26	T	.11	.14			.59	.16					
27		.01				.53	.22					
28	T	.22	.03	.05		.04	.03	.02				
29			.04	.11				.03	T			
30	T			.34				.02				
31												
TOTAL	1.13	1.04	1.65	1.89	1.08	2.48	1.85	1.52	.73			

COLORADO CLIMATOLOGICAL DATA TABLE I.3.2.2-4

STATION: WR02 PRECIPITATION (Inches) YEAR: 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				.02	.29	.45		.03				
2					.32				T			
3				.27	.03							
4					.14			T	.42			
5		.15	.27									
6			T		.11							
7		T	.02									
8		.13	.04	.03		T						
9	.02	.07				.03						
10		.01				T		.07				
11								T				
12				.03		.55		.35				
13						.02		.33				
14		.11	.20				.01					
15			.15						T			
16					.38							
17	.02				.35							
18	.08		.06					.29				
19		.50		.09	.27				.01			
20							T	.15				
21				.09			.52					
22	.04			T			.50					
23							.52		.01			
24			.03			.02						
25	.13		.22				.08					
26		.05	.03			.34	.16					
27						.26	.10		T			
28	.02	.14	.03	.12								
29				.17		.02		.08				
30				.32					.09			
31			.22									
TOTAL	.31	1.16	1.27	1.14	1.89	1.69	1.89	1.30	.53			

STATION: JQS Precipitation (Inches) YEAR: 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.06	.06	.80	.05				.03		
2					.31			.03		.33		
3				.50	.08			1.12	.40	.12		
4		.03	.25	.01	.06			.02	.10			
5		.30	.28					.02				
6		.07	.07		.18	.16						
7	.11	.09										
8	.02	.22	.02	.05		.57	.09		.18			
9	.07	.05		.19		.03	.02	.05				
10					.04	.10						
11				.10	.03	.05		.10				
12			.06	.35		.56		.41				
13			.01			.30		.05				
14			.38		.22				.05			
15			.12		.47							
16		.07			1.25							
17			.31		.37			.45				
18	.08	1.03	.25		.37							
19	.01		.01	.03	.02			.44				
20	.01		.02				.75	.04				
21	.02			.20	.10							
22	.10		.02	.03								
23	.09		.36			.03			.14			
24	.03		.37		.03	.05						
25	.15	.14	.54			.34	.60					
26	.01	.11				.36			.11			
27	.02	.05		.15		.16	.04					
28	.05	.45	.24	.42		.43	.02					
29	.02			.18	.05	.02			.03			
30	.08			.92					.48			
31			28									
TOTAL	.87	2.61	3.65	3.19	4.38	3.21	1.52	2.73	1.49			

UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY TABLE 1.3.2.2-6

STATION: EFP Precipitation (Inches) YEAR: 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		.01	.07	.09	.42	.05						
2			.01	.29	.22		.75	.04		.10		
3				.12	.06			.21	.35	.12		
4		.12	.23		.01			.05		.01		
5		.21	.15									
6		.02						.03				
7	.12	.15	.05									
8	.02	.20	.01	.19								
9	.01	.15		.01								
10		.05										
11		.01	.02	.14		.01						
12		.01	.01	.58		.54						
13			.05			.05						
14		.03	.31									
15			.16		.15							
16		.05	.02		1.40							
17	.01		.35		.16			.08				
18	.12	.30	.25	.03	.35			.01				
19		.51	.02	.14	.01			.39				
20				.21								
21	.01			.02	.10							
22	.10		.05				.04					
23	.05		.27			.10	.28					
24	.15		.42			.08		.02				
25	.08	.22	.41			.50	.44					
26		.15				.11						
27		.10		.33		.18	.03					
28	.05	.37	.21	.16								
29	.08			.40	.07			.08				
30				.80								
31			.21									
TOTAL	.80	2.62	3.28	3.51	2.95	1.62	.94	.91	.35			

UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY TABLE 1.3.2.2-7

STATION: EMFP Precipitation (Inches) YEAR: 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					.50							
2				.40	.29			.11				
3			.06	.10	.04				.07			
4		.10	.42	.04	.02			1.36	.22			
5		.10	.15				.05					
6		.03			.13	.13						
7	.10	.03	.01	.06			.04		.10			
8	.02	.06		.18		.31						
9		.03						.02				
10		.05						.07				
11			.02	.08				.05				
12				.02		.75		.77				
13			.06			.06						
14		.02	.32		.04							
15		.01	.06		.14							
16		.04	.02		.90		.02					
17	.04		.06		.63		.03	.11				
18	.01	.70	.07		.21		.05					
19			.01		.10		1.50					
20				.15			.05					
21	.06			.22	.16							
22	.02			.02			.41					
23			.10			.05			.21			
24	.08	.05	.23			.07	.13					
25		.03	.15			.45						
26		.02				.09						
27		.12	.13	.15		.26			.12			
28			.02	.08		.13						
29	.02			.28								
30				.41			.01					
31			.33									
TOTAL	.35	1.39	2.22	2.19	3.16	2.30	2.29	2.49	.72			

WIND FIELDS

40

1.3.2.3 Wind Fields

This section presents the wind field data collected at the meteorological tower Station AA23. Data consist of wind speed, wind direction, vertical variations in horizontal wind speed and wind direction, and stability class. Wind flow patterns and stability class provide information for diffusion modeling and pollutant transport and concentration.

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TABLE 1.3.2.3-1

METEOROLOGICAL SUMMARY: WIND SPEED & DIRECTION

10 METER LEVEL
STATION AA23

(1982-1983) By Month

Item	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
Wind Speed, Hourly Maximum(MPS)	10	9	12	8	8	11	8	9	7	9	10	10
&												
Associated Direction (DEG)	216	217	177	209	216	217	(1)	246	(2)	(3)	192	(4)
Wind Speed, Hourly Average(MPS)	3	2	2	2	3	3	3	3	2	3	2	3
&												
Wind Direction, Hourly Average(DEG)	225	203	209	222	229	259	216	187	180	223	215	211

(1) Maximum wind speed occurred 5 times - See monthly diurnal table for times of occurrences.

(2) Maximum wind speed occurred 2 times - 8/10/83 @ 2000 and 8/18/83 @ 1800.

(3) Maximum wind speed occurred 3 times - 9/19/83 @ 0900, 1200 and 1700.

(4) Maximum wind speed occurred 3 times - 11/13/83 @ 0500, 0600 and 11/17/83 @ 1200.

TABLE 1.3.2.3-2

METEOROLOGICAL SUMMARY: WIND SPEED & DIRECTION

30 METER LEVEL
STATION AA23

(1982-1983) By Month

Item	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
Wind Speed, Hourly Maximum(MPS) &	14	13	15	11	12	15	12	15	11	13	13	15
Associated Direction (DEG)	219	220	183	216	257	220	(1)	244	211	(2)	187	216
Wind Speed, Hourly Average(MPS) &	3	3	3	4	4	3	4	4	3	4	3	4
Wind Direction, Hourly Average(DEG)	227	208	222	229	240	264	215	185	175	227	223	208

(1) Maximum wind speed occurred twice - 6/1/83 @ 1400 and 6/11/83 @ 1400.

(2) Maximum wind speed occurred 3 times - 9/19/83 @ 0900, 1200 and 1700.

TABLE 1.3.2.3-3

METEOROLOGICAL SUMMARY: WIND SPEED & DIRECTION

60 METER LEVEL
STATION AA23

(1982-1983) By Month

Item	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
Wind Speed, Hourly Maximum(MPS) &	16	16	17	13	13	17	13	14	13	14	14	17
Associated Direction (DEG)	218	217	146	217	215	220	(1)	242	210	(2)	186	215
Wind Speed, Hourly Average(MPS) &	4	3	4	4	4	4	4	4	3	4	3	4
Wind Direction, Hourly Average(DEG)	231	216	232	233	245	263	221	190	178	228	231	215

(1) Maximum wind speed occurred twice - 6/1/83 @ 1400 and 6/11/83 @ 1400.

(2) Maximum wind speed occurred 3 times - 9/19/83 @ 0800, 0900 and 1400.

TABLE 1.3.2.3-4

METEOROLOGICAL SUMMARY: VECTOR MONTHLY AVERAGES FOR WINDS

10 METER LEVEL
STATION AA23

(1982-1983) By Month

Item	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
Wind Speed (MPS)	1.2	1.1	1.0	1.2	1.4	1.0	1.3	1.6	0.9	1.6	0.8	1.4
Wind Direction (DEG)	213	197	204	222	219	244	211	197	191	223	217	218

METEOROLOGICAL SUMMARY: VECTOR MONTHLY AVERAGES FOR WINDS

30 METER LEVEL
STATION AA23

(1982-1983) By Month

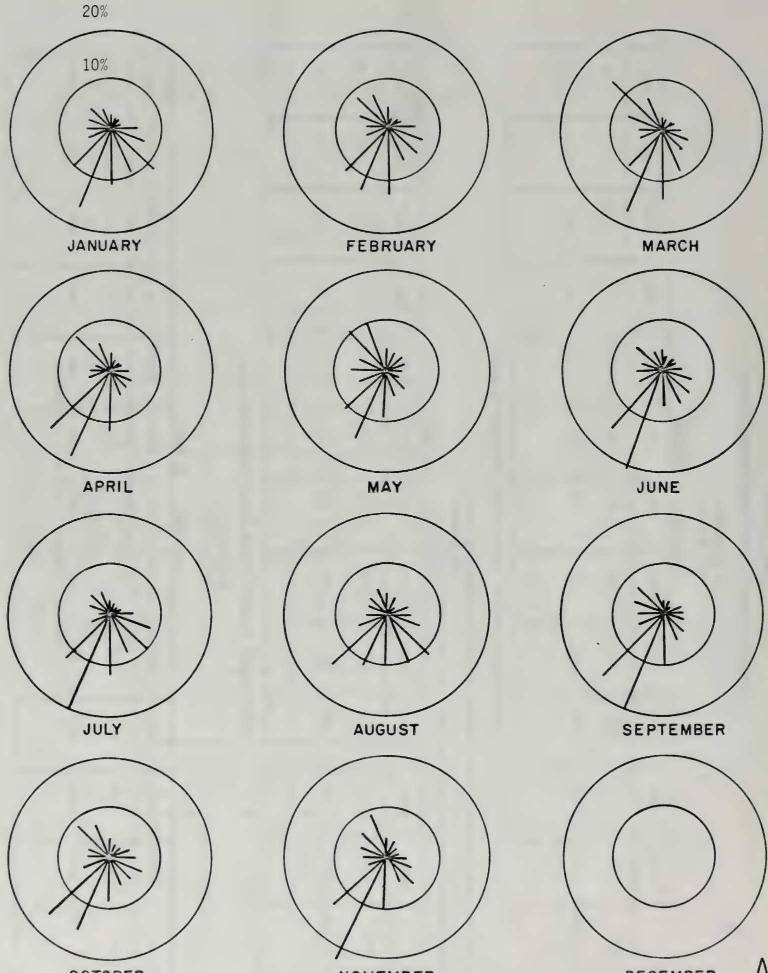
Item	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
Wind Speed (MPS)	1.8	1.6	1.4	1.7	1.9	1.5	1.9	2.2	1.2	2.3	1.2	2.0
Wind Direction (DEG)	211	200	210	116	224	251	207	193	181	217	214	214

METEOROLOGICAL SUMMARY: VECTOR MONTHLY AVERAGES FOR WINDS

60 METER LEVEL
STATION AA23

(1982-1983) By Month

Item	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
Wind Speed (MPS)	2.3	2.0	1.7	2.0	2.2	1.6	2.3	2.6	1.4	2.7	1.4	2.6
Wind Direction (DEG)	216	205	215	226	224	248	208	194	184	218	218	213



JANUARY FEBRUARY MARCH

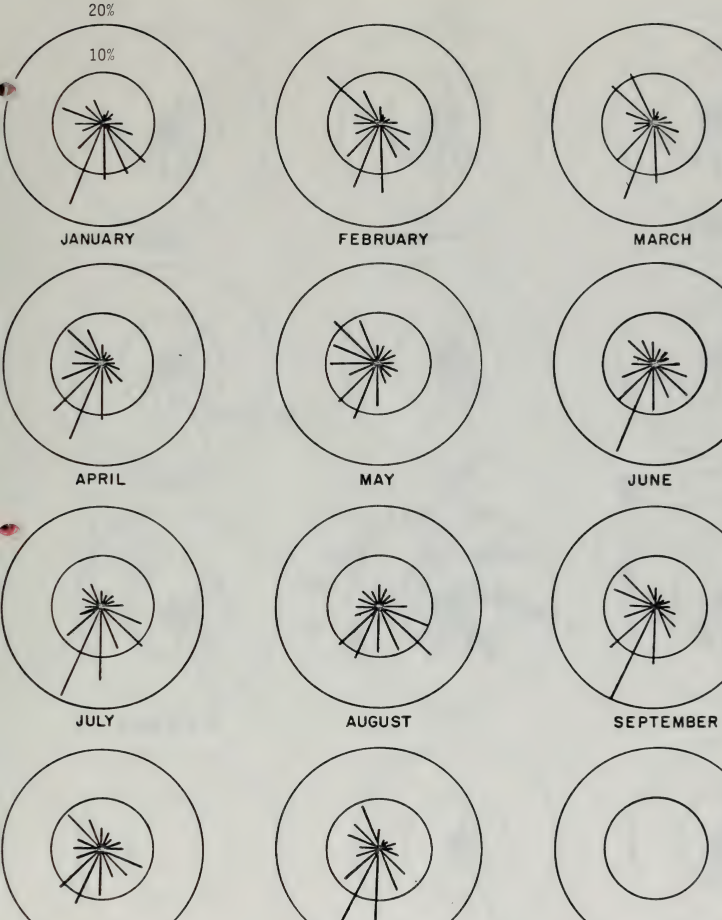
APRIL MAY JUNE

JULY AUGUST SEPTEMBER

OCTOBER NOVEMBER DECEMBER

FIGURE 1.3.2.3-1

STATION AB23 @ 10m ELEVATION WIND ROSES



JANUARY FEBRUARY MARCH

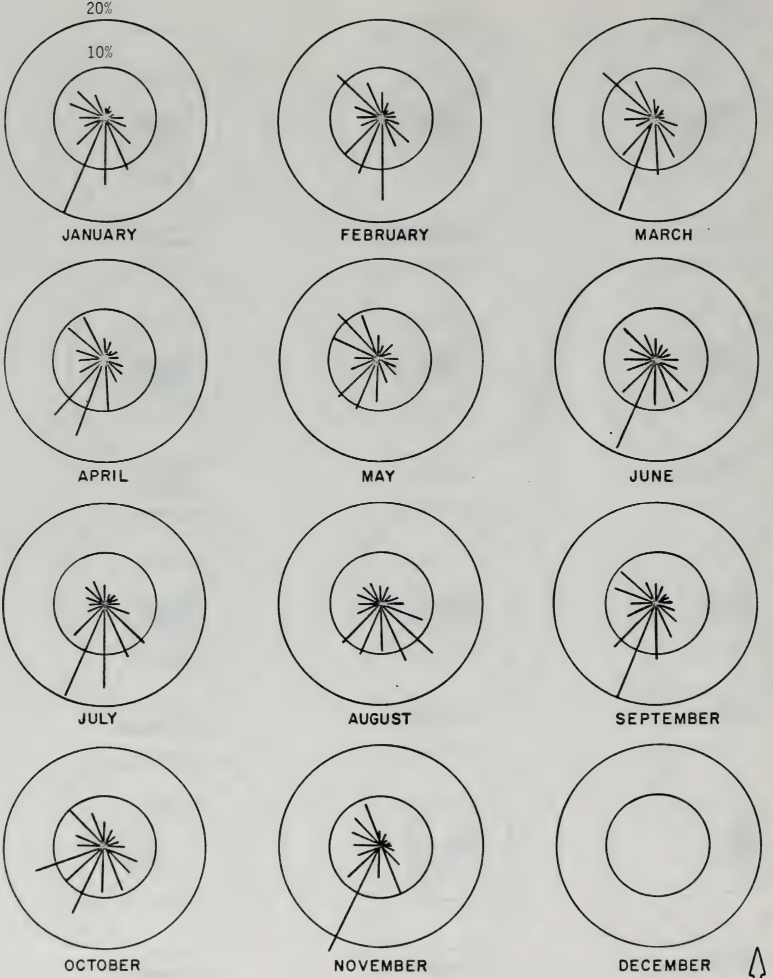
APRIL MAY JUNE

JULY AUGUST SEPTEMBER

OCTOBER NOVEMBER DECEMBER

FIGURE 1.3.2.3-2

STATION AB23 @ 30 m ELEVATION WIND ROSES



JANUARY FEBRUARY MARCH

APRIL MAY JUNE

JULY AUGUST SEPTEMBER

OCTOBER NOVEMBER DECEMBER

FIGURE 1.3.2.3-3

STATION AB23 @ 60m ELEVATION WIND ROSES

AA23 QUARTERLY WIND ROSE @10 M
DEC '82 - FEB '83

TOTAL % OF CALMS DISTRIBUTED (0.00%)
TOTAL NO. OF 1-HOUR SAMPLES - 2033

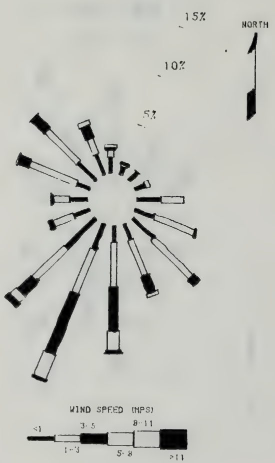


FIGURE 1.3.2.3-4

AA23 QUARTERLY WIND ROSE @30 M
DEC '82 - FEB '83

TOTAL % OF CALMS DISTRIBUTED (0.00%)
TOTAL NO. OF 1-HOUR SAMPLES - 2083

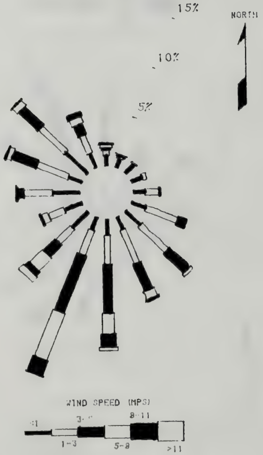


FIGURE 1.3.2.3-5

AA23 QUARTERLY WIND ROSE @60 M
DEC '82 - FEB '83

TOTAL % OF CALMS DISTRIBUTED 10.00%
TOTAL NO. OF 1-HOUR SAMPLES = 2127

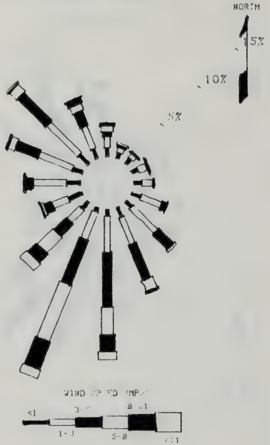


FIGURE 1.3.2.3-6

AA23 QUARTERLY WIND ROSE @10 M
MAR '83 - MAY '83

TOTAL % OF CALMS DISTRIBUTED (0.00%)
TOTAL NO. OF 1-HOUR SAMPLES - 2107

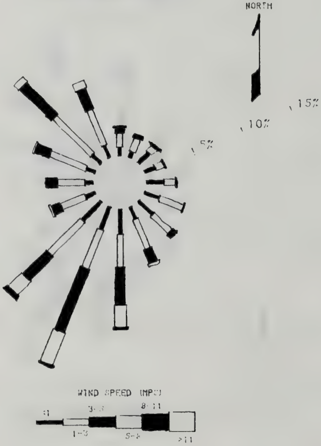


FIGURE 1.3.2.3-7

AA23 QUARTERLY WIND ROSE @10 M
MAR '83 - MAY '83

TOTAL % OF CALMS DISTRIBUTED [illegible]
TOTAL NO. OF 1-HOUR SAMPLES = 2113

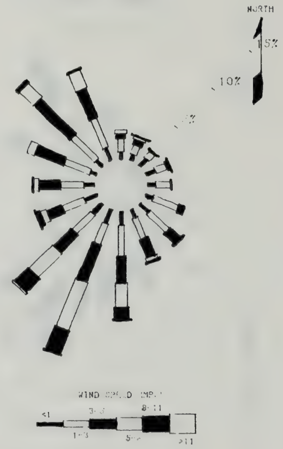


FIGURE 1.3.2.3-8

AA23 QUARTERLY WIND ROSE @60 M
MAR '83 - MAY '83

TOTAL % OF CALMS DISTRIBUTED 0.00%
TOTAL NO. OF 1-HOUR SAMPLES - 2184

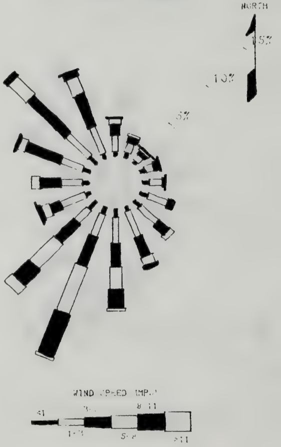


FIGURE 1.3.2.3-9

AA23 QUARTERLY WIND ROSE @10 M
JUN '83 AUG '83

TOTAL % OF CALMS DISTRIBUTED (0.00%)
TOTAL NO. OF 1-HOUR SAMPLES = 2144

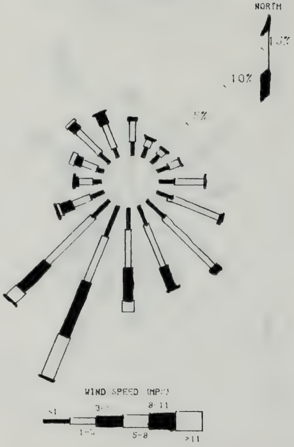


FIGURE 1.3.2.3-10

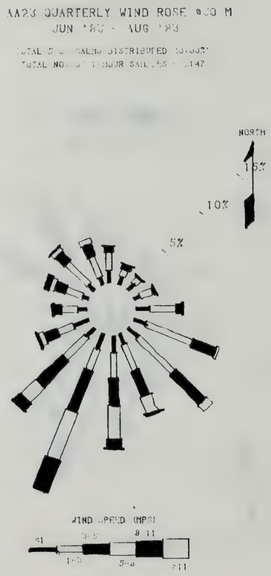


FIGURE 1.3.2.3-11

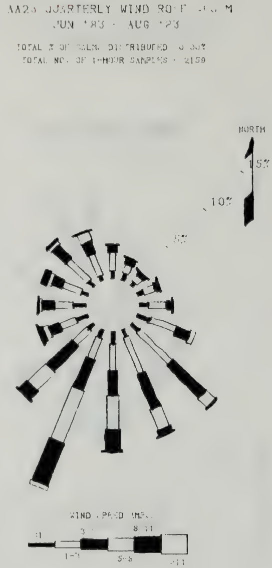


FIGURE 1.3.2.3-12

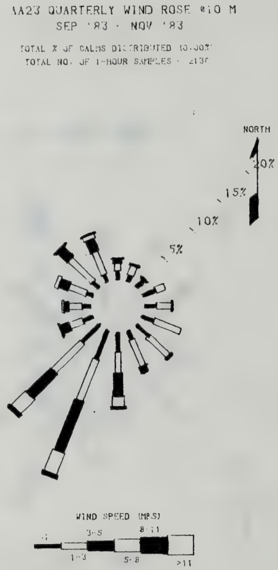


FIGURE 1.3.2.3-13

AA23 QUARTERLY WIND ROSE @30 M
SEP '83 -- NOV '83

TOTAL % OF CALMS DISTRIBUTED (0.00%)
TOTAL NO. OF 1-HOUR SAMPLES : 2153

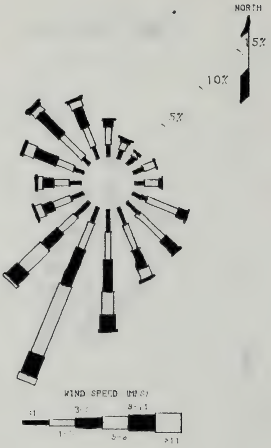


FIGURE 1.3.2.3-14

AA23 QUARTERLY WIND ROSE @60 M
SEP '83 - NOV '83

TOTAL % OF CALMS DISTRIBUTED (0.00%)
TOTAL NO. OF 1-HOUR SAMPLES = 2164

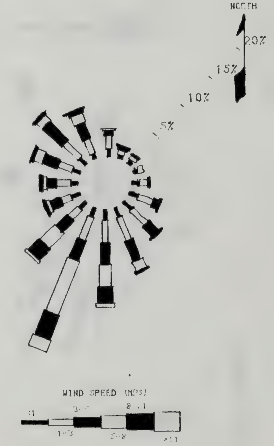


FIGURE 1.3.2.3-15

AA23 ANNUAL WIND ROSE @10 M
DEC '82 - NOV '83

TOTAL % OF CALMS DISTRIBUTED 10.00%
TOTAL NO. OF 1-HOUR SAMPLES - 8470

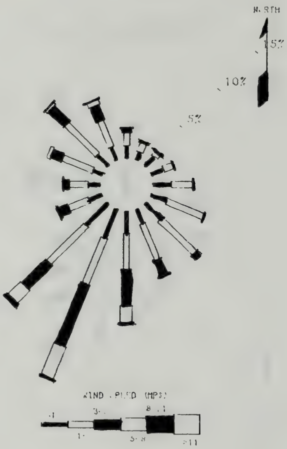


FIGURE 1.3.2.3-16

AA23 ANNUAL WIND ROSE @30 M
DEC '82 - NOV '83

TOTAL % OF CALMS DISTRIBUTED 10.33%
TOTAL NO. OF 1-HOUR SAMPLES = [illegible]49.

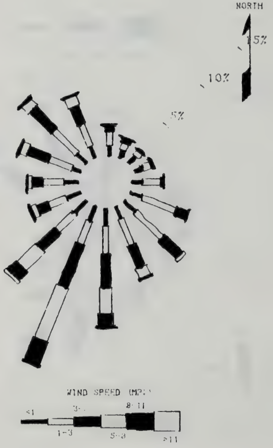


FIGURE 1.3.2.3-17

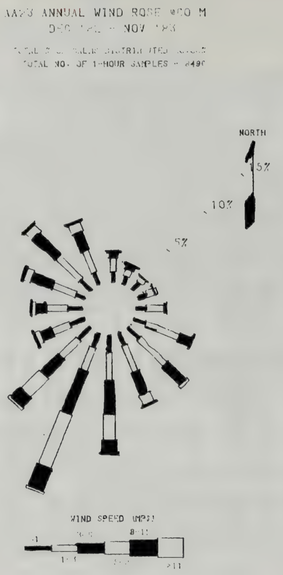


FIGURE 1.3.2.3-18

TABLE 1.3.2.3-5

AVERAGE HOURLY STABILITY CLASSES

SOURCE: Temperature difference between 60 meter and 10 meter levels on the met tower (Adjusted for wind speed)

Month	HOUR																								Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Dec.1982	E	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	D	D
Jan.1983	E	E	E	E	E	E	E	E	E	E	E	D	E	E	D	D	D	D	E	E	E	E	E	E	E
Feb.	E	E	E	E	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	E	E	E	E	E
Mar.	D	E	E	D	E	E	E	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D	D	D	D
April	E	E	E	E	E	E	E	D	D	D	D	C	C	D	C	C	C	C	D	D	E	D	E	E	D
May	D	E	E	D	E	E	E	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D	D	D	D
June	F	E	E	F	F	E	E	D	C	C	B	B	C	C	C	C	C	C	C	D	E	E	E	E	D
July	E	E	E	F	E	E	E	D	C	C	B	B	B	B	C	B	B	C	C	E	E	E	E	E	D
Aug.	E	E	E	F	E	E	E	D	C	B	B	B	B	B	B	B	B	B	C	D	E	D	E	E	D
Sept.	E	E	E	F	F	E	E	D	D	B	B	B	B	C	B	B	C	C	D	D	D	E	E	E	D
Oct.	F	F	F	F	F	F	F	E	E	C	B	B	B	B	B	B	C	D	E	E	F	F	F	F	D
Nov.	E	E	E	E	E	E	E	E	E	D	C	C	C	C	C	C	D	E	E	E	E	E	E	E	D

Key: ▨ Unstable Class

D Neutral

░ Stable Class

TABLE 1.3.2.3-6

METEOROLOGICAL SUMMARY: STABILITY CLASS FREQUENCIES (%)

Source: Temperature difference between 60 meter and 10 meter levels on the met tower
(Adjusted for wind speed)

Pasquill-Gifford Stability Class	dT/dz Range[1] for this Stability Class (°C/100m)	1982	1983											Annual Mean
		Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	
A	<-1.9	1.4	0.1	0.6	1.0	1.4	1.0	9.1	11.8	17.6	10.7	11.3	5.5	5.96
B	-1.9 to -1.7	3.9	1.4	3.7	11.6	14.9	11.6	16.5	16.6	22.0	21.2	12.4	8.2	12.00
C	-1.7 to -1.5	6.0	5.2	3.2	9.7	8.9	9.7	7.7	6.3	5.3	6.4	3.9	4.0	6.36
D	-1.5 to -0.5	38.7	29.2	38.3	39.4	34.5	39.4	20.3	19.5	9.5	15.5	11.8	33.7	27.48
E	-0.5 to 1.5	34.2	42.3	35.6	29.8	31.3	29.8	24.0	25.5	23.3	24.5	26.1	32.6	29.92
F	>1.5	15.8	21.9	18.6	8.5	9.0	8.5	22.4	22.3	22.3	21.7	34.5	16.0	18.29
	Total Percentage	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

VISIBILITY

1.3.3 Visibility

The visibility monitoring program has been co-sponsored by the CB and Rio Blanco Shale Oil Projects. There are no state or federal requirements for visibility monitoring; however, the program is required under the Federal Oil Shale Lease Environmental Stipulations.

Figure 1.3.3-1 shows the four views used to monitor visual range.

In April 1983, the Oil Shale Project Office approved conversion from the photographic to the telephotometric method of data collection for the visibility study. "Equivalent" telephotometric data were required for the years that no telephotometric data were collected (1975-1978). All telephotometric basic visual range data by hour from 1975-1983 are reported in Table 1.3.3-1 in miles.

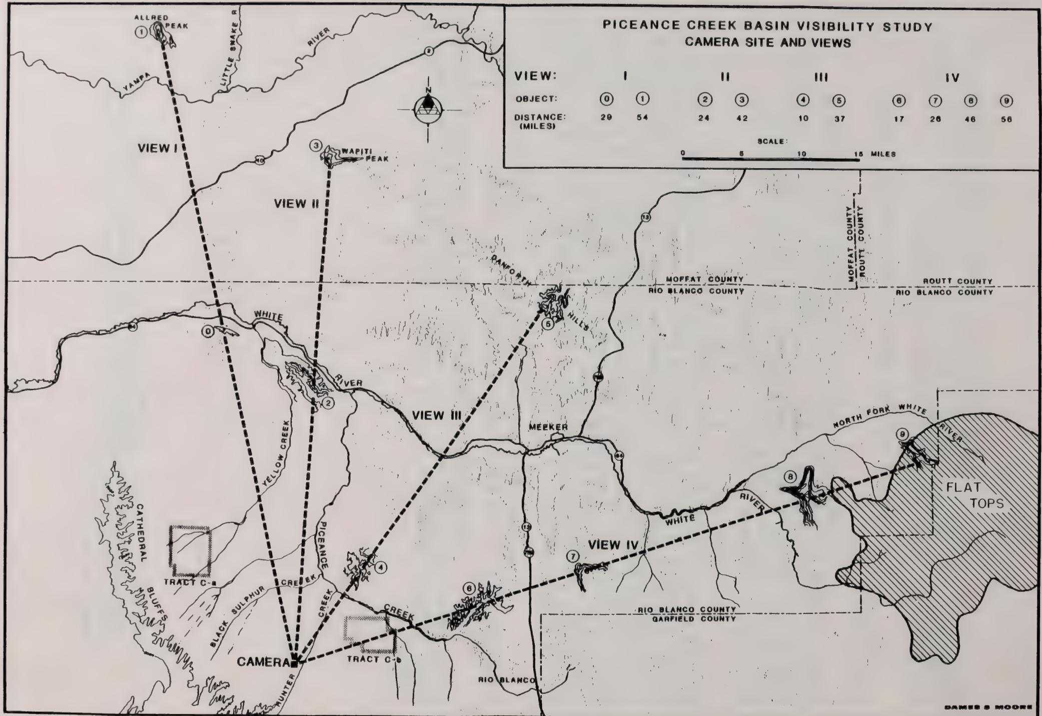
All data have been reduced using a contrast threshold of the eye (C_m) of 0.05 instead of 0.02. According to L. Tombach and D. Allard of Aerovironment[1], 0.05 is a more accurate estimate based on what the global public actually "sees." The telephotometric visual range data were reduced using both contrast thresholds, and the visual range values obtained were compared to the field technician's estimated visual range. The 0.05 contract threshold values were substantially closer to the estimated visual range values, and therefore the 0.05 contrast ratio is the one used. The use of 0.05 results in values of visual range which are approximately 76.6% of those derived from use of 0.02.

The mean daily visual range by view is reported on Table 1.3.3-2. Table 1.3.3-3 shows average seasonal visual range.

Examination of data using object 8 in view 4 shows that this object yields very eratic and invalid data. Therefore, object 8 will no longer be used. Objects 6, 7, and 9 in view 4 were used to measure visual range.

---

[1] Tombach, I and D. Allard. Comparison of Visibility Measurement Techniques: Eastern United States, Aerovironment, Inc. October, 1983. Prepared for the Electric Power Research Institute. EA-3292. Research Project 862-15.


PICEANCE CREEK BASIN VISIBILITY STUDY
CAMERA SITE AND VIEWS
SCALE:
0
5
10
15 MILES
N
ALLRED PEAK
YAMPA
LITTLE SNAKE R
RIVER
WAPITI PEAK
VIEW I
VIEW II
VIEW III
VIEW IV
DANFORTH HILLS
MOFFAT COUNTY
RIO BLANCO COUNTY
ROUTT COUNTY
WHITE
RIVER
MEEKER
NORTH FORK WHITE RIVER
FLAT TOPS
YELLOW CREEK
PICEANCE
CREEK
CATHEDRAL BLUFFS
TRACT C-a
BLACK SULPHUR
CAMERA
HUNTER
TRACT C-b
RIO BLANCO
GARFIELD COUNTY
DAMES & MOORE
PLATE 1

VIEW:	I		II		III		IV			
OBJECT:	⓪	①	②	③	④	⑤	⑥	⑦	⑧	⑨
DISTANCE: (MILES)	29	54	24	42	10	37	17	26	46	56

Figure 1.3.3-1

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL* RANGE
75	9	25	830	1	85.5
				2	83.2
				3	99.3
				4	126.3
			930	1	100.1
				2	83.2
				3	93.9
				4	118.6
			1030	1	100.1
				2	89.3
				3	88.5
				4	126.3
			1130	1	100.1
				2	83.2
				3	88.5
				4	118.6
			1300	1	.0
				2	.0
				3	.0
				4	.0
			1400	1	.0
				2	.0
				3	.0
				4	.0
			1500	1	.0
				2	.0
				3	.0
				4	.0
		26	830	1	86.2
				2	73.1
				3	73.9
				4	104.7
			930	1	93.9
				2	78.5
				3	79.3
				4	120.1
			1030	1	.0
				2	.0
				3	.0
				4	.0
			1130	1	.0
				2	.0
				3	.0
				4	.0
			1300	1	.0
				2	.0
				3	.0
				4	.0
			1400	1	.0
				2	.0
				3	.0

*Statute Miles

```
                                        VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
75       9     26    1400   4          .0
                     1500   1          .0
                            2          .0
                            3          .0
                            4          .0
               27     830   1        47.7
                            2        43.1
                            3        55.4
                            4        42.3
                      930   1        47.7
                            2        47.0
                            3        55.4
                            4        50.8
                     1030   1        52.4
                            2        57.8
                            3        55.4
                            4        54.7
                     1130   1        52.4
                            2        57.8
                            3        60.8
                            4        75.5
                     1300   1        60.8
                            2        61.6
                            3        66.2
                            4        75.5
                     1400   1        65.4
                            2        61.6
                            3        60.8
                            4        75.5
                     1500   1        70.1
                            2        65.4
                            3        66.2
                            4          .0
        10      3     830   1       105.5
                            2        81.6
                            3       101.6
                            4       117.8
                      930   1        97.0
                            2        75.5
                            3        89.3
                            4       117.8
                     1030   1        97.0
                            2        81.6
                            3        89.3
                            4       100.9
                     1130   1        97.0
                            2        69.3
                            3        77.8
                            4       100.9
                     1300   1        97.0
                            2        75.5
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
75	10	3	1300	3	77.8
				4	91.6
			1400	1	97.0
				2	75.5
				3	83.2
				4	91.6
			1500	1	105.5
				2	81.6
				3	83.2
				4	100.9
		9	830	1	120.9
				2	107.0
				3	112.4
				4	142.4
			930	1	120.9
				2	93.9
				3	112.4
				4	142.4
			1030	1	112.4
				2	100.1
				3	106.3
				4	124.7
			1130	1	112.4
				2	93.9
				3	112.4
				4	124.7
			1300	1	112.4
				2	87.0
				3	112.4
				4	116.3
			1400	1	96.3
				2	80.8
				3	82.4
				4	107.8
			1500	1	103.9
				2	87.0
				3	93.9
				4	116.3
		15	830	1	55.4
				2	56.2
				3	54.7
				4	53.1
			930	1	50.8
				2	49.3
				3	60.1
				4	50.8
			1030	1	55.4
				2	60.1
				3	65.4
				4	87.8
			1130	1	55.4

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
75	10	15	1130	2	60.1
				3	65.4
				4	87.8
			1300	1	63.9
				2	60.1
				3	70.8
				4	87.8
			1400	1	77.0
				2	67.8
				3	76.2
				4	80.8
			1500	1	77.0
				2	75.5
				3	76.2
				4	80.8
		21	830	1	95.5
				2	80.8
				3	93.2
				4	124.0
			930	1	95.5
				2	86.2
				3	81.6
				4	115.5
			1030	1	103.9
				2	86.2
				3	87.0
				4	99.3
			1130	1	103.9
				2	77.8
				3	93.2
				4	107.8
			1300	1	103.9
				2	80.8
				3	98.6
				4	115.5
			1400	1	95.5
				2	86.2
				3	104.7
				4	107.8
			1500	1	103.9
				2	80.8
				3	93.2
				4	115.5
		27	830	1	66.2
				2	69.3
				3	79.3
				4	92.4
			930	1	50.0
				2	58.5
				3	63.9
				4	98.6

```
                                          VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
75     10      27    1030   1        62.4
                            2        65.4
                            3        59.3
                            4        80.1
                     1130   1        54.7
                            2        44.7
                            3        63.9
                            4        92.4
                     1300   1          .0
                            2        44.7
                            3          .0
                            4        67.0
                     1400   1          .0
                            2          .0
                            3          .0
                            4        38.5
                     1500   1          .0
                            2          .0
                            3          .0
                            4          .0
       11       2     830   1       108.6
                            2        83.9
                            3        90.1
                            4        98.6
                      930   1       116.3
                            2        90.1
                            3        90.1
                            4       104.7
                     1030   1       116.3
                            2       102.4
                            3        84.7
                            4       111.6
                     1130   1       108.6
                            2        96.3
                            3        90.1
                            4       111.6
                     1300   1       100.9
                            2        90.1
                            3        84.7
                            4       104.7
                     1400   1       116.3
                            2        96.3
                            3       100.9
                            4       118.6
                     1500   1       123.2
                            2        96.3
                            3       100.9
                            4       111.6
                8     830   1          .0
                            2          .0
                            3          .0
```

```
                                  VISUAL
YEAR   MONTH   DAY   HOUR   VIEW  RANGE
----   -----   ---   ----   ----  ------
75     11        8    830   4         .0
                      930   1         .0
                            2         .0
                            3         .0
                            4         .0
                     1030   1         .0
                            2         .0
                            3         .0
                            4         .0
                     1130   1       42.3
                            2       60.8
                            3         .0
                            4         .0
                     1300   1       93.2
                            2       77.8
                            3       22.3
                            4         .0
                     1400   1       93.2
                            2       72.4
                            3       40.0
                            4       51.6
                     1500   1       86.2
                            2       77.8
                            3       88.5
                            4       55.4
                14    830   1      138.6
                            2      114.7
                            3      151.7
                            4      154.8
                      930   1      131.7
                            2      107.8
                            3      117.8
                            4      111.6
                     1030   1      123.2
                            2      102.4
                            3      124.7
                            4      125.5
                     1130   1      116.3
                            2      102.4
                            3      117.8
                            4      125.5
                     1300   1      123.2
                            2      127.0
                            3         .0
                            4       83.2
                     1400   1      138.6
                            2      102.4
                            3      124.7
                            4      125.5
                     1500   1      131.7
                            2      120.9
```

```
                                       VISUAL
YEAR  MONTH  DAY  HOUR  VIEW  RANGE
----  -----  ---  ----  ----  ------
75    11     14   1500  3      117.8
                        4      118.6
             20    830  1       86.2
                        2       67.0
                        3       73.9
                        4       85.5
                   930  1      129.4
                        2       67.0
                        3       78.5
                        4       48.5
                  1030  1       69.3
                        2       79.3
                        3       63.9
                        4       37.7
                  1130  1       74.7
                        2       71.6
                        3       68.5
                        4       44.7
                  1300  1       46.2
                        2       71.6
                        3       78.5
                        4       41.6
                  1400  1       86.2
                        2       72.4
                        3       88.5
                        4       97.8
                  1500  1      107.8
                        2       89.3
                        3      117.0
                        4      124.0
             26    830  1       79.3
                        2       84.7
                        3      112.4
                        4       97.0
                   930  1       86.2
                        2       77.0
                        3      106.3
                        4       97.0
                  1030  1      116.3
                        2       83.9
                        3       95.5
                        4       98.6
                  1130  1      100.9
                        2       83.9
                        3       84.7
                        4         .0
                  1300  1         .0
                        2         .0
                        3         .0
                        4         .0
                  1400  1         .0
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
75	11	26	1400	2	.0
				3	.0
				4	.0
			1500	1	.0
				2	.0
				3	.0
				4	.0
	12	2	830	1	113.2
				2	88.5
				3	114.0
				4	126.3
			930	1	97.0
				2	88.5
				3	89.3
				4	100.9
			1030	1	105.5
				2	88.5
				3	83.2
				4	117.8
			1130	1	97.0
				2	69.3
				3	77.8
				4	126.3
			1300	1	97.0
				2	69.3
				3	77.8
				4	109.3
			1400	1	105.5
				2	69.3
				3	77.8
				4	100.9
			1500	1	105.5
				2	81.6
				3	77.8
				4	83.9
		8	830	1	90.1
				2	74.7
				3	77.8
				4	83.2
			930	1	89.3
				2	62.4
				3	67.0
				4	69.3
			1030	1	89.3
				2	75.5
				3	67.0
				4	83.2
			1130	1	89.3
				2	75.5
				3	72.4
				4	83.2

```
                                            VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
75     12        8   1300   1        89.3
                            2        63.1
                            3        83.9
                            4       100.9
                     1400   1       114.0
                            2        95.5
                            3       115.5
                            4       127.0
                     1500   1       105.5
                            2       109.3
                            3       122.4
                            4       118.6
                20    830   1       107.0
                            2        89.3
                            3       117.8
                            4       119.3
                      930   1       107.0
                            2        83.2
                            3       110.9
                            4       128.6
                     1030   1       107.0
                            2        83.2
                            3       110.9
                            4       110.9
                     1130   1       107.0
                            2        76.2
                            3       103.9
                            4       128.6
                     1300   1       107.0
                            2        83.2
                            3        73.1
                            4       110.9
                     1400   1       107.0
                            2        83.2
                            3       110.9
                            4        83.9
                     1500   1       107.0
                            2        83.2
                            3        90.9
                            4        93.2
                27    830   1          .0
                            2          .0
                            3          .0
                            4          .0
                      930   1          .0
                            2        74.7
                            3        33.1
                            4        41.6
                     1030   1        47.7
                            2          .0
                            3        30.8
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
75	12	27	1030	4	43.9
			1130	1	65.4
				2	54.7
				3	29.3
				4	50.8
			1300	1	140.1
				2	62.4
				3	39.3
				4	43.1
			1400	1	114.0
				2	82.4
				3	39.3
				4	43.1
			1500	1	85.5
				2	69.3
				3	39.3
				4	54.7
76	1	2	830	1	.0
				2	61.6
				3	60.8
				4	55.4
			930	1	43.1
				2	43.1
				3	60.8
				4	43.9
			1030	1	47.7
				2	53.9
				3	22.3
				4	47.0
			1130	1	47.7
				2	57.8
				3	22.3
				4	52.4
			1300	1	43.1
				2	43.1
				3	20.8
				4	38.5
			1400	1	52.4
				2	43.1
				3	23.9
				4	33.1
			1500	1	47.7
				2	39.3
				3	14.6
				4	.0
		8	830	1	105.5
				2	98.6
				3	83.9
				4	164.8
			930	1	97.0
				2	121.7

```
                              VISUAL
YEAR  MONTH  DAY  HOUR  VIEW  RANGE
----  -----  ---  ----  ----  ------
76     1       8   930  3       67.0
                        4       53.1
                  1030  1       97.0
                        2      116.3
                        3       90.1
                        4       56.2
                  1130  1       89.3
                        2      104.7
                        3         .0
                        4       56.2
                  1300  1       89.3
                        2       88.5
                        3       67.0
                        4       47.0
                  1400  1       97.0
                        2       88.5
                        3       60.8
                        4       43.9
                  1500  1       89.3
                        2       66.2
                        3       37.0
                        4       43.9
             14    830  1      102.4
                        2       82.4
                        3      103.9
                        4      116.3
                   930  1      111.6
                        2       88.5
                        3      111.6
                        4      125.5
                  1030  1      111.6
                        2         .0
                        3       97.0
                        4      111.6
                  1130  1      102.4
                        2         .0
                        3       90.1
                        4       87.0
                  1300  1       93.2
                        2      100.1
                        3       97.0
                        4       96.3
                  1400  1      111.6
                        2       45.4
                        3         .0
                        4      106.3
                  1500  1      111.6
                        2      135.5
                        3       83.2
                        4      106.3
             20    830  1       89.3
```

```
                                           VISUAL
YEAR   MONTH   DAY   HOUR   VIEW    RANGE
----   -----   ---   ----   ----    ------
76       1     20     830    2        69.3
                             3        96.3
                             4       127.0
                      930    1        97.0
                             2        69.3
                             3        90.1
                             4       136.3
                     1030    1        89.3
                             2        88.5
                             3        83.9
                             4       100.9
                     1130    1        97.0
                             2        83.9
                             3        83.9
                             4        92.4
                     1300    1       105.5
                             2        83.9
                             3        90.1
                             4       100.9
                     1400    1        89.3
                             2        79.3
                             3        83.9
                             4        92.4
                     1500    1       105.5
                             2        69.3
                             3        83.9
                             4        92.4
               26     830    1        53.1
                             2        55.4
                             3        61.6
                             4        51.6
                      930    1        61.6
                             2        67.0
                             3        67.0
                             4        55.4
                     1030    1        61.6
                             2        59.3
                             3        61.6
                             4        47.0
                     1130    1        61.6
                             2        55.4
                             3        61.6
                             4        43.1
                     1300    1        67.0
                             2        71.6
                             3        61.6
                             4        43.1
                     1400    1        57.0
                             2        63.1
                             3        33.9
                             4          .0
```

```
                                          VISUAL
YEAR   MONTH   DAY   HOUR    VIEW     RANGE
----   -----   ---   ----    ----     ------
 76      1      26   1500    1          43.9
                             2          63.1
                             3          49.3
                             4            .0
         2       1    830    1         103.2
                             2          73.9
                             3         116.3
                             4         131.7
                      930    1          95.5
                             2          68.5
                             3         103.9
                             4         131.7
                     1030    1         103.2
                             2          68.5
                             3          97.8
                             4         123.2
                     1130    1          95.5
                             2          61.6
                             3          97.8
                             4         123.2
                     1300    1          95.5
                             2          55.4
                             3          92.4
                             4         107.0
                     1400    1          87.8
                             2          68.5
                             3          97.8
                             4          98.6
                     1500    1          87.8
                             2          80.1
                             3          87.0
                             4          98.6
                 7    830    1            .0
                             2            .0
                             3            .0
                             4            .0
                      930    1          47.7
                             2          39.3
                             3          22.3
                             4          43.1
                     1030    1          56.2
                             2          46.2
                             3          28.5
                             4          46.2
                     1130    1          51.6
                             2          43.1
                             3            .0
                             4          42.3
                     1300    1          51.6
                             2          46.2
                             3          60.8
```

```
                                              VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
76     2       7     1300   4        42.3
                     1400   1        51.6
                            2        57.0
                            3          .0
                            4        40.8
                     1500   1        56.2
                            2        53.9
                            3        23.9
                            4        37.7
               13     830   1       103.9
                            2        80.8
                            3        76.2
                            4        67.8
                      930   1       103.9
                            2        74.7
                            3        65.4
                            4        74.7
                     1030   1        95.5
                            2        74.7
                            3        60.1
                            4        74.7
                     1130   1        87.8
                            2        62.4
                            3        65.4
                            4        81.6
                     1300   1        95.5
                            2        68.5
                            3        76.2
                            4        27.7
                     1400   1        95.5
                            2        62.4
                            3        76.2
                            4        99.3
                     1500   1        95.5
                            2        68.5
                            3        70.8
                            4        90.9
               19     830   1        88.5
                            2        68.5
                            3        77.0
                            4       107.8
                      930   1       103.9
                            2        80.8
                            3        88.5
                            4       124.7
                     1030   1        96.3
                            2        80.8
                            3        77.0
                            4       116.3
                     1130   1        96.3
                            2        80.8
```

```
                                         VISUAL
YEAR  MONTH  DAY  HOUR  VIEW  RANGE
----  -----  ---  ----  ----  ------
76     2     19   1130  3         .0
                        4      100.1
                  1300  1      112.4
                        2       74.7
                        3         .0
                        4       91.6
                  1400  1       96.3
                        2       80.8
                        3         .0
                        4       83.2
                  1500  1       96.3
                        2       74.7
                        3         .0
                        4      116.3
             25    830  1       88.5
                        2       68.5
                        3       58.5
                        4      100.1
                   930  1       88.5
                        2       68.5
                        3       77.0
                        4      100.1
                  1030  1       80.1
                        2       62.4
                        3       71.6
                        4       81.6
                  1130  1       80.1
                        2       62.4
                        3       71.6
                        4       68.5
                  1300  1       80.1
                        2      100.1
                        3         .0
                        4      100.1
                  1400  1       88.5
                        2      114.0
                        3       77.0
                        4       75.5
                  1500  1       88.5
                        2       68.5
                        3       77.0
                        4       54.7
       3      2    830  1         .0
                        2         .0
                        3         .0
                        4         .0
                   930  1         .0
                        2         .0
                        3         .0
                        4         .0
                  1030  1         .0
```

```
                                         VISUAL
YEAR  MONTH  DAY  HOUR  VIEW  RANGE
----  -----  ---  ----  ----  ------
76    3        2  1030  2         .0
                        3         .0
                        4         .0
                  1130  1         .0
                        2       43.1
                        3       26.9
                        4       33.1
                  1300  1         .0
                        2       53.9
                        3       33.9
                        4       27.7
                  1400  1         .0
                        2         .0
                        3         .0
                        4         .0
                  1500  1         .0
                        2         .0
                        3         .0
                        4         .0
               8   830  1       61.6
                        2       66.2
                        3       67.0
                        4       76.2
                   930  1       52.4
                        2       54.7
                        3       60.8
                        4       83.2
                  1030  1       52.4
                        2       62.4
                        3       55.4
                        4       76.2
                  1130  1       65.4
                        2       74.7
                        3       60.8
                        4       69.3
                  1300  1       57.0
                        2       54.7
                        3       60.8
                        4       61.6
                  1400  1       61.6
                        2       50.8
                        3       60.8
                        4       69.3
                  1500  1       57.0
                        2       70.8
                        3       60.8
                        4       83.9
              14   830  1       84.7
                        2       70.1
                        3       89.3
                        4       82.4
```

```
                                        VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
76      3      14     930   1        65.4
                            2        93.2
                            3        77.8
                            4        68.5
                     1030   1        70.1
                            2        70.1
                            3        83.2
                            4        68.5
                     1130   1        74.7
                            2        65.4
                            3        89.3
                            4        68.5
                     1300   1        65.4
                            2        70.1
                            3        89.3
                            4          .0
                     1400   1        60.8
                            2        65.4
                            3        34.6
                            4          .0
                     1500   1       121.7
                            2       145.5
                            3          .0
                            4          .0
               20     830   1        98.6
                            2        96.3
                            3        73.1
                            4        97.8
                      930   1        98.6
                            2        83.2
                            3        84.7
                            4        92.4
                     1030   1       107.0
                            2        70.1
                            3        90.9
                            4        97.8
                     1130   1        98.6
                            2        63.1
                            3        84.7
                            4        98.6
                     1300   1        90.1
                            2        71.6
                            3        73.1
                            4        83.9
                     1400   1        90.1
                            2        67.0
                            3        67.0
                            4        76.2
                     1500   1        98.6
                            2        83.2
                            3        84.7
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	3	20	1500	4	55.4
		26	830	1	90.1
				2	80.8
				3	90.9
				4	87.8
			930	1	67.0
				2	80.8
				3	61.6
				4	87.8
			1030	1	81.6
				2	90.9
				3	90.9
				4	76.2
			1130	1	90.1
				2	76.2
				3	73.1
				4	83.9
			1300	1	90.1
				2	80.8
				3	79.3
				4	63.9
			1400	1	98.6
				2	76.2
				3	67.0
				4	76.2
			1500	1	98.6
				2	95.5
				3	79.3
				4	55.4
	4	1	830	1	115.5
				2	83.2
				3	103.9
				4	128.6
			930	1	90.1
				2	83.2
				3	97.0
				4	128.6
			1030	1	115.5
				2	103.2
				3	90.9
				4	101.6
			1130	1	115.5
				2	89.3
				3	110.9
				4	110.9
			1300	1	107.0
				2	83.2
				3	90.9
				4	101.6
			1400	1	107.0
				2	83.2

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	4	1	1400	3	84.7
				4	101.6
			1500	1	107.0
				2	76.2
				3	73.1
				4	83.9
		7	830	1	.0
				2	39.3
				3	.0
				4	.0
			930	1	.0
				2	55.4
				3	.0
				4	.0
			1030	1	52.4
				2	39.3
				3	20.8
				4	.0
			1130	1	60.8
				2	57.8
				3	17.7
				4	.0
			1300	1	52.4
				2	53.9
				3	23.9
				4	.0
			1400	1	74.7
				2	61.6
				3	37.0
				4	62.4
			1500	1	65.4
				2	53.9
				3	64.7
				4	50.8
		13	830	1	57.0
				2	43.1
				3	60.8
				4	47.0
			930	1	61.6
				2	58.5
				3	72.4
				4	.0
			1030	1	43.1
				2	50.8
				3	115.5
				4	47.0
			1130	1	.0
				2	.0
				3	60.8
				4	.0
			1300	1	52.4

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	4	13	1300	2	50.8
				3	122.4
				4	47.0
			1400	1	47.7
				2	36.2
				3	60.8
				4	41.6
			1500	1	52.4
				2	50.8
				3	129.4
				4	50.8
		19	830	1	.0
				2	.0
				3	.0
				4	.0
			930	1	48.5
				2	47.7
				3	34.6
				4	.0
			1030	1	43.9
				2	.0
				3	67.8
				4	43.9
			1130	1	.0
				2	.0
				3	15.4
				4	28.5
			1300	1	58.5
				2	68.5
				3	40.8
				4	52.4
			1400	1	90.9
				2	77.0
				3	48.5
				4	52.4
			1500	1	108.6
				2	70.8
				3	51.6
				4	60.8
		25	830	1	89.3
				2	82.4
				3	96.3
				4	127.0
			930	1	105.5
				2	88.5
				3	115.5
				4	127.0
			1030	1	97.0
				2	82.4
				3	96.3
				4	145.5

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	4	25	1130	1	75.5
				2	75.5
				3	96.3
				4	109.3
			1300	1	52.4
				2	50.8
				3	60.8
				4	76.2
			1400	1	57.0
				2	58.5
				3	60.8
				4	69.3
			1500	1	57.0
				2	50.8
				3	60.8
				4	69.3
	5	1	830	1	52.4
				2	61.6
				3	66.2
				4	91.6
			930	1	52.4
				2	69.3
				3	77.8
				4	117.8
			1030	1	60.8
				2	57.8
				3	72.4
				4	91.6
			1130	1	70.1
				2	78.5
				3	72.4
				4	91.6
			1300	1	88.5
				2	69.3
				3	72.4
				4	75.5
			1400	1	88.5
				2	69.3
				3	72.4
				4	96.3
			1500	1	97.0
				2	75.5
				3	77.8
				4	90.1
		7	830	1	74.7
				2	75.5
				3	66.2
				4	63.1
			930	1	56.2
				2	69.3
				3	60.8

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	5	7	930	4	63.1
			1030	1	43.1
				2	.0
				3	72.4
				4	58.5
			1130	1	.0
				2	43.1
				3	40.8
				4	54.7
			1300	1	.0
				2	53.9
				3	40.8
				4	54.7
			1400	1	70.1
				2	57.8
				3	43.1
				4	42.3
			1500	1	74.7
				2	61.6
				3	40.8
				4	30.8
		13	830	1	89.3
				2	69.3
				3	72.4
				4	100.9
			930	1	65.4
				2	69.3
				3	83.9
				4	100.9
			1030	1	89.3
				2	63.1
				3	72.4
				4	92.4
			1130	1	65.4
				2	63.1
				3	67.0
				4	118.6
			1300	1	75.5
				2	69.3
				3	72.4
				4	109.3
			1400	1	89.3
				2	75.5
				3	72.4
				4	92.4
			1500	1	89.3
				2	69.3
				3	78.5
				4	118.6
		19	830	1	65.4
				2	54.7

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	5	19	830	3	67.0
				4	76.2
			930	1	52.4
				2	62.4
				3	67.0
				4	76.2
			1030	1	61.6
				2	66.2
				3	60.8
				4	59.3
			1130	1	65.4
				2	58.5
				3	33.1
				4	76.2
			1300	1	65.4
				2	66.2
				3	72.4
				4	.0
			1400	1	.0
				2	.0
				3	26.2
				4	76.2
			1500	1	.0
				2	.0
				3	49.3
				4	76.2
		25	830	1	77.0
				2	70.1
				3	73.9
				4	93.9
			930	1	65.4
				2	73.1
				3	67.8
				4	77.0
			1030	1	72.4
				2	70.1
				3	67.8
				4	77.0
			1130	1	53.1
				2	68.5
				3	67.8
				4	64.7
			1300	1	53.1
				2	36.2
				3	38.5
				4	43.9
			1400	1	67.8
				2	77.0
				3	34.6
				4	60.8
			1500	1	87.8

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	5	25	1500	2	70.1
				3	86.2
				4	120.9
		31	830	1	90.1
				2	83.9
				3	92.4
				4	111.6
			930	1	99.3
				2	77.0
				3	86.2
				4	93.9
			1030	1	90.1
				2	77.0
				3	92.4
				4	102.4
			1130	1	90.1
				2	77.0
				3	86.2
				4	102.4
			1300	1	77.0
				2	77.0
				3	80.1
				4	69.3
			1400	1	90.1
				2	77.0
				3	86.2
				4	111.6
			1500	1	82.4
				2	83.9
				3	92.4
				4	93.9
	6	6	830	1	57.0
				2	58.5
				3	67.0
				4	76.2
			930	1	47.7
				2	47.0
				3	55.4
				4	54.7
			1030	1	57.0
				2	54.7
				3	60.8
				4	59.3
			1130	1	52.4
				2	54.7
				3	67.0
				4	63.1
			1300	1	52.4
				2	54.7
				3	60.8
				4	76.2

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	6	6	1400	1	57.0
				2	54.7
				3	60.8
				4	63.1
			1500	1	52.4
				2	66.2
				3	67.0
				4	63.1
		12	830	1	97.0
				2	75.5
				3	78.5
				4	83.2
			930	1	89.3
				2	75.5
				3	90.1
				4	90.1
			1030	1	89.3
				2	75.5
				3	72.4
				4	69.3
			1130	1	97.0
				2	88.5
				3	83.9
				4	90.1
			1300	1	89.3
				2	82.4
				3	96.3
				4	100.9
			1400	1	114.0
				2	95.5
				3	83.9
				4	92.4
			1500	1	105.5
				2	95.5
				3	90.1
				4	100.9
		18	830	1	67.8
				2	68.5
				3	73.9
				4	77.0
			930	1	77.0
				2	82.4
				3	60.1
				4	77.0
			1030	1	57.8
				2	.0
				3	61.6
				4	51.6
			1130	1	82.4
				2	70.1
				3	73.9

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	6	18	1130	4	77.0
			1300	1	43.9
				2	83.9
				3	48.5
				4	102.4
			1400	1	77.0
				2	90.9
				3	57.0
				4	91.6
			1500	1	116.3
				2	21.6
				3	142.4
				4	56.2
		24	830	1	72.4
				2	77.0
				3	86.2
				4	102.4
			930	1	67.8
				2	70.1
				3	86.2
				4	120.9
			1030	1	90.1
				2	77.0
				3	80.1
				4	111.6
			1130	1	90.1
				2	70.1
				3	80.1
				4	102.4
			1300	1	72.4
				2	77.0
				3	80.1
				4	93.9
			1400	1	90.1
				2	77.0
				3	73.9
				4	93.9
			1500	1	90.1
				2	77.0
				3	67.8
				4	93.9
		30	830	1	58.5
				2	52.4
				3	161.7
				4	77.0
			930	1	63.1
				2	60.1
				3	62.4
				4	77.0
			1030	1	63.1
				2	68.5

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	6	30	1030	3	62.4
				4	77.0
			1130	1	72.4
				2	60.1
				3	62.4
				4	65.4
			1300	1	67.8
				2	70.8
				3	62.4
				4	60.8
			1400	1	63.1
				2	64.7
				3	67.8
				4	65.4
			1500	1	77.8
				2	70.8
				3	67.8
				4	60.8
	7	6	830	1	53.9
				2	77.8
				3	87.8
				4	103.9
			930	1	68.5
				2	43.9
				3	74.7
				4	80.8
			1030	1	73.9
				2	70.8
				3	74.7
				4	85.5
			1130	1	79.3
				2	70.8
				3	68.5
				4	75.5
			1300	1	63.9
				2	70.8
				3	68.5
				4	80.8
			1400	1	84.7
				2	70.8
				3	74.7
				4	77.8
			1500	1	90.1
				2	84.7
				3	81.6
				4	85.5
		12	830	1	67.0
				2	55.4
				3	67.0
				4	83.9
			930	1	67.0

```
                                             VISUAL
YEAR    MONTH   DAY    HOUR    VIEW     RANGE
----    -----   ---    ----    ----     ------
76        7     12      930    2          55.4
                               3          55.4
                               4          76.2
                       1030    1          67.0
                               2          55.4
                               3          61.6
                               4          76.2
                       1130    1          67.0
                               2          59.3
                               3          55.4
                               4          63.9
                       1300    1          61.6
                               2            .0
                               3          73.1
                               4          68.5
                       1400    1            .0
                               2          83.2
                               3          61.6
                               4          60.1
                       1500    1            .0
                               2            .0
                               3          67.0
                               4          63.9
                18      830    1          86.2
                               2          76.2
                               3          90.9
                               4            .0
                        930    1          53.1
                               2          47.7
                               3          67.0
                               4            .0
                       1030    1          57.0
                               2          55.4
                               3          61.6
                               4            .0
                       1130    1          71.6
                               2          70.1
                               3          67.0
                               4            .0
                       1300    1          53.1
                               2          43.9
                               3          31.6
                               4            .0
                       1400    1          67.0
                               2          55.4
                               3          37.7
                               4            .0
                       1500    1          57.0
                               2          55.4
                               3          31.6
                               4            .0
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	7	24	830	1	92.4
				2	86.2
				3	95.5
				4	124.0
			930	1	100.9
				2	86.2
				3	88.5
				4	124.0
			1030	1	92.4
				2	78.5
				3	88.5
				4	114.7
			1130	1	82.4
				2	78.5
				3	82.4
				4	104.7
			1300	1	110.1
				2	86.2
				3	102.4
				4	85.5
			1400	1	110.1
				2	93.2
				3	95.5
				4	95.5
			1500	1	120.1
				2	93.2
				3	95.5
				4	85.5
		30	830	1	75.5
				2	63.1
				3	72.4
				4	100.9
			930	1	65.4
				2	63.1
				3	67.0
				4	92.4
			1030	1	61.6
				2	69.3
				3	67.0
				4	76.2
			1130	1	89.3
				2	69.3
				3	72.4
				4	76.2
			1300	1	89.3
				2	69.3
				3	72.4
				4	76.2
			1400	1	75.5
				2	69.3
				3	67.0

```
                                         VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
76       7     30    1400   4        69.3
                     1500   1        89.3
                            2        69.3
                            3        49.3
                            4          .0
         8      5     830   1        98.6
                            2        83.2
                            3        90.9
                            4       128.6
                      930   1        98.6
                            2        76.2
                            3        90.9
                            4       119.3
                     1030   1        90.1
                            2        83.2
                            3        97.0
                            4       128.6
                     1130   1        98.6
                            2        83.2
                            3        90.9
                            4       119.3
                     1300   1       107.0
                            2        83.2
                            3        90.9
                            4       119.3
                     1400   1       107.0
                            2        89.3
                            3        84.7
                            4       110.9
                     1500   1       115.5
                            2        89.3
                            3        84.7
                            4       119.3
               11     830   1        98.6
                            2        96.3
                            3       103.9
                            4       128.6
                      930   1       107.0
                            2        89.3
                            3        97.0
                            4       119.3
                     1030   1        90.1
                            2        83.2
                            3        97.0
                            4       110.9
                     1130   1       107.0
                            2        96.3
                            3        84.7
                            4        83.9
                     1300   1        98.6
                            2        89.3
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	8	11	1300	3	61.6
				4	93.2
			1400	1	141.7
				2	76.2
				3	73.1
				4	.0
			1500	1	124.0
				2	133.2
				3	90.9
				4	.0
		17	830	1	131.7
				2	109.3
				3	122.4
				4	92.4
			930	1	114.0
				2	109.3
				3	115.5
				4	100.9
			1030	1	114.0
				2	109.3
				3	102.4
				4	100.9
			1130	1	122.4
				2	102.4
				3	90.1
				4	100.9
			1300	1	105.5
				2	82.4
				3	78.5
				4	69.3
			1400	1	89.3
				2	69.3
				3	72.4
				4	92.4
			1500	1	105.5
				2	69.3
				3	96.3
				4	100.9
		23	830	1	64.7
				2	68.5
				3	66.2
				4	68.5
			930	1	83.2
				2	73.1
				3	36.2
				4	68.5
			1030	1	69.3
				2	68.5
				3	60.8
				4	75.5
			1130	1	69.3

```
                                       VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
76       8     23    1130   2        74.7
                            3        66.2
                            4        81.6
                     1300   1        88.5
                            2        74.7
                            3        77.0
                            4       100.1
                     1400   1        88.5
                            2        68.5
                            3        60.8
                            4        91.6
                     1500   1        96.3
                            2        74.7
                            3        71.6
                            4        91.6
               29     830   1       112.4
                            2       100.1
                            3       119.3
                            4       142.4
                      930   1       112.4
                            2        93.9
                            3       106.3
                            4       124.7
                     1030   1       103.9
                            2        93.9
                            3       106.3
                            4       116.3
                     1130   1       103.9
                            2        93.9
                            3        93.9
                            4       134.0
                     1300   1       112.4
                            2        93.9
                            3       119.3
                            4       142.4
                     1400   1       120.9
                            2       107.0
                            3       100.1
                            4       151.7
                     1500   1       120.9
                            2        93.9
                            3       112.4
                            4       124.7
         9      4     830   1        87.8
                            2        74.7
                            3        87.0
                            4       115.5
                      930   1        87.8
                            2        74.7
                            3        81.6
                            4       115.5
```

```
                                          VISUAL
YEAR   MONTH   DAY   HOUR    VIEW    RANGE
----   -----   ---   ----    ----    ------
76      9       4    1030    1         87.8
                             2         80.8
                             3         87.0
                             4        107.8
                     1130    1         95.5
                             2         80.8
                             3         93.2
                             4        107.8
                     1300    1         95.5
                             2         86.2
                             3         87.0
                             4         90.9
                     1400    1         95.5
                             2         86.2
                             3         87.0
                             4        107.8
                     1500    1        110.9
                             2         86.2
                             3         81.6
                             4        107.8
               10     830    1         99.3
                             2         83.9
                             3        106.3
                             4         84.7
                      930    1         99.3
                             2         83.9
                             3         93.2
                             4         70.1
                     1030    1         99.3
                             2         83.9
                             3         73.9
                             4         70.1
                     1130    1         99.3
                             2         83.9
                             3         80.1
                             4         77.0
                     1300    1         90.9
                             2         77.0
                             3         86.2
                             4         77.0
                     1400    1         99.3
                             2         83.9
                             3         99.3
                             4         77.0
                     1500    1        117.0
                             2        105.5
                             3         86.2
                             4         84.7
               16     830    1         72.4
                             2         70.1
                             3         61.6
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	9	16	830	4	84.7
			930	1	67.8
				2	63.9
				3	73.9
				4	84.7
			1030	1	57.8
				2	60.1
				3	67.8
				4	84.7
			1130	1	67.8
				2	63.9
				3	61.6
				4	69.3
			1300	1	82.4
				2	70.1
				3	61.6
				4	60.8
			1400	1	82.4
				2	70.1
				3	61.6
				4	64.7
			1500	1	82.4
				2	70.1
				3	56.2
				4	64.7
		22	830	1	81.6
				2	59.3
				3	55.4
				4	30.8
			930	1	43.9
				2	51.6
				3	23.1
				4	39.3
			1030	1	53.1
				2	51.6
				3	44.7
				4	50.8
			1130	1	48.5
				2	63.1
				3	49.3
				4	92.4
			1300	1	71.6
				2	71.6
				3	55.4
				4	39.3
			1400	1	48.5
				2	55.4
				3	55.4
				4	63.9
			1500	1	57.0
				2	67.0

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
76	9	22	1500	3	67.0
				4	47.0
78	4	6	830	1	127.0
				2	111.6
				3	.0
				4	.0
			930	1	103.2
				2	92.4
				3	73.9
				4	129.4
			1030	1	87.8
				2	92.4
				3	87.0
				4	121.7
			1130	1	95.5
				2	80.1
				3	70.8
				4	94.7
			1300	1	95.5
				2	80.1
				3	97.8
				4	100.9
			1400	1	110.9
				2	98.6
				3	87.0
				4	107.8
			1500	1	118.6
				2	104.7
				3	87.0
				4	137.1
		12	830	1	90.1
				2	83.2
				3	84.7
				4	105.5
			930	1	90.1
				2	89.3
				3	84.7
				4	113.2
			1030	1	90.1
				2	83.2
				3	84.7
				4	113.2
			1130	1	90.1
				2	83.2
				3	79.3
				4	128.6
			1300	1	98.6
				2	89.3
				3	79.3
				4	120.9
			1400	1	107.0

```
                                        VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
78      4      12    1400   2        89.3
                            3        90.9
                            4        98.6
                     1500   1       107.0
                            2        89.3
                            3        84.7
                            4        83.9
               18     830   1        88.5
                            2        74.7
                            3        71.6
                            4       110.1
                      930   1        88.5
                            2        74.7
                            3        71.6
                            4        88.5
                     1030   1        88.5
                            2        80.8
                            3        71.6
                            4        88.5
                     1130   1        96.3
                            2        74.7
                            3        77.0
                            4       110.1
                     1300   1        88.5
                            2        74.7
                            3        77.0
                            4        88.5
                     1400   1        88.5
                            2        74.7
                            3        71.6
                            4        81.6
                     1500   1        88.5
                            2        74.7
                            3        77.0
                            4        81.6
               24     830   1        90.1
                            2        70.1
                            3        73.1
                            4        90.9
                      930   1        90.1
                            2        70.1
                            3        79.3
                            4       105.5
                     1030   1        90.1
                            2        83.2
                            3        79.3
                            4        90.9
                     1130   1        90.1
                            2        83.2
                            3        84.7
                            4        98.6
```

```
                                              VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
78       4     24    1300   1        90.1
                            2        76.2
                            3        73.1
                            4        82.4
                     1400   1        98.6
                            2        76.2
                            3        84.7
                            4        90.9
                     1500   1        90.1
                            2        76.2
                            3        73.1
                            4        76.2
               30     830   1        53.1
                            2        36.2
                            3        31.6
                            4        55.4
                      930   1        61.6
                            2          .0
                            3        33.9
                            4        51.6
                     1030   1        71.6
                            2        43.9
                            3        37.7
                            4        36.2
                     1130   1        76.2
                            2        67.0
                            3        60.8
                            4        51.6
                     1300   1        76.2
                            2        63.1
                            3        21.6
                            4        57.0
                     1400   1       150.9
                            2        76.2
                            3        55.4
                            4        36.2
                     1500   1        57.0
                            2        83.2
                            3        42.3
                            4        51.6
         5      6     830   1        65.4
                            2        58.5
                            3        72.4
                            4        47.0
                      930   1        65.4
                            2        54.7
                            3        27.7
                            4        47.0
                     1030   1          .0
                            2        54.7
                            3        46.2
```

```
                                            VISUAL
YEAR  MONTH  DAY  HOUR  VIEW  RANGE
----  -----  ---  ----  ----  ------
78      5     6   1030  4         .0
                  1130  1       57.0
                        2       62.4
                        3       46.2
                        4       47.0
                  1300  1       65.4
                        2       39.3
                        3       17.7
                        4       50.8
                  1400  1         .0
                        2         .0
                        3       43.1
                        4       71.6
                  1500  1         .0
                        2         .0
                        3       37.0
                        4       76.2
             12    830  1      105.5
                        2       88.5
                        3      115.5
                        4       90.1
                   930  1       97.0
                        2       95.5
                        3      102.4
                        4       97.0
                  1030  1       97.0
                        2       88.5
                        3       96.3
                        4      104.7
                  1130  1       97.0
                        2       95.5
                        3       90.1
                        4      111.6
                  1300  1       97.0
                        2       82.4
                        3       90.1
                        4       76.2
                  1400  1       97.0
                        2       82.4
                        3       83.9
                        4       83.2
                  1500  1       97.0
                        2       82.4
                        3       83.9
                        4       90.1
             18    830  1       80.8
                        2       69.3
                        3       78.5
                        4       76.2
                   930  1       80.8
                        2       88.5
```

```
                                        VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
78       5     18     930   3        90.1
                            4        86.2
                     1030   1        89.3
                            2        88.5
                            3        90.1
                            4        76.2
                     1130   1        97.0
                            2        95.5
                            3        96.3
                            4        86.2
                     1300   1       105.5
                            2        82.4
                            3        78.5
                            4        80.8
                     1400   1        97.0
                            2       102.4
                            3        96.3
                            4       104.7
                     1500   1       105.5
                            2        82.4
                            3       108.6
                            4       119.3
               24     830   1        67.8
                            2        68.5
                            3        70.8
                            4        74.7
                      930   1        67.8
                            2        56.2
                            3        65.4
                            4        80.8
                     1030   1        47.0
                            2        68.5
                            3        65.4
                            4        94.7
                     1130   1        59.3
                            2        60.1
                            3        65.4
                            4        87.8
                     1300   1        55.4
                            2        52.4
                            3        70.8
                            4        74.7
                     1400   1        55.4
                            2        73.9
                            3        76.2
                            4        80.8
                     1500   1        59.3
                            2        49.3
                            3        60.1
                            4        87.8
               30     830   1        72.4
```

```
                                          VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
78      5      30     830   2        73.9
                            3        76.2
                            4        80.8
                      930   1        59.3
                            2        68.5
                            3        76.2
                            4        87.8
                     1030   1        50.8
                            2        73.9
                            3        70.8
                            4        80.8
                     1130   1        55.4
                            2        61.6
                            3        65.4
                            4        74.7
                     1300   1        50.8
                            2        68.5
                            3        60.1
                            4        80.8
                     1400   1        59.3
                            2        68.5
                            3        65.4
                            4        87.8
                     1500   1        67.8
                            2        61.6
                            3        65.4
                            4        74.7
       10       5     830   1        93.9
                            2        79.3
                            3        80.1
                            4        97.8
                      930   1        93.9
                            2        73.1
                            3        80.1
                            4       105.5
                     1030   1        93.9
                            2        73.1
                            3        80.1
                            4        90.1
                     1130   1        79.3
                            2        73.1
                            3        74.7
                            4        90.1
                     1300   1        87.0
                            2        79.3
                            3        80.1
                            4        97.8
                     1400   1        97.0
                            2        73.1
                            3        80.1
                            4        97.8
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
78	10	5	1500	1	93.9
				2	79.3
				3	85.5
				4	97.8
		11	830	1	120.9
				2	62.4
				3	71.6
				4	91.6
			930	1	112.4
				2	68.5
				3	66.2
				4	83.2
			1030	1	96.3
				2	68.5
				3	66.2
				4	83.2
			1130	1	120.9
				2	68.5
				3	71.6
				4	91.6
			1300	1	88.5
				2	74.7
				3	88.5
				4	100.1
			1400	1	96.3
				2	80.8
				3	88.5
				4	100.1
			1500	1	96.3
				2	80.8
				3	88.5
				4	116.3
		17	830	1	88.5
				2	81.6
				3	83.2
				4	.0
			930	1	88.5
				2	75.5
				3	66.2
				4	91.6
			1030	1	88.5
				2	75.5
				3	66.2
				4	91.6
			1130	1	60.8
				2	69.3
				3	60.8
				4	91.6
			1300	1	70.1
				2	75.5
				3	66.2

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
78	10	17	1300	4	109.3
			1400	1	101.6
				2	75.5
				3	66.2
				4	91.6
			1500	1	.0
				2	79.3
				3	77.8
				4	100.9
		23	830	1	99.3
				2	90.9
				3	.0
				4	.0
			930	1	108.6
				2	83.9
				3	.0
				4	.0
			1030	1	90.9
				2	90.9
				3	80.1
				4	.0
			1130	1	99.3
				2	90.9
				3	86.2
				4	107.0
			1300	1	108.6
				2	77.0
				3	80.1
				4	92.4
			1400	1	117.0
				2	90.9
				3	93.2
				4	107.0
			1500	1	126.3
				2	97.8
				3	86.2
				4	92.4
		29	830	1	98.6
				2	89.3
				3	90.9
				4	128.6
			930	1	98.6
				2	83.2
				3	79.3
				4	119.3
			1030	1	90.1
				2	70.1
				3	73.1
				4	101.6
			1130	1	81.6
				2	63.1

```
                                   VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
78     10      29    1130   3        67.0
                            4        60.1
                     1300   1        90.1
                            2        70.1
                            3        61.6
                            4        55.4
                     1400   1        90.1
                            2        63.1
                            3        55.4
                            4        61.6
                     1500   1        81.6
                            2        70.1
                            3        61.6
                            4        76.2
       11       4     830   1        72.4
                            2        77.0
                            3        86.2
                            4       107.0
                      930   1        77.8
                            2        83.9
                            3        93.2
                            4       115.5
                     1030   1        90.9
                            2        70.8
                            3        73.9
                            4       115.5
                     1130   1        90.9
                            2        77.0
                            3        93.2
                            4       107.0
                     1300   1        90.9
                            2        63.9
                            3        80.1
                            4       100.1
                     1400   1        90.9
                            2        77.0
                            3        73.9
                            4        84.7
                     1500   1        99.3
                            2        97.8
                            3        99.3
                            4       115.5
               10     830   1          .0
                            2          .0
                            3          .0
                            4          .0
                      930   1          .0
                            2          .0
                            3          .0
                            4          .0
                     1030   1          .0
```

```
                                         VISUAL
YEAR  MONTH  DAY  HOUR  VIEW  RANGE
----  -----  ---  ----  ----  ------
78    11     10   1030  2         .0
                        3       34.6
                        4       43.9
                  1130  1         .0
                        2         .0
                        3       38.5
                        4       51.6
                  1300  1         .0
                        2         .0
                        3       34.6
                        4       47.7
                  1400  1         .0
                        2         .0
                        3       28.5
                        4       47.7
                  1500  1         .0
                        2         .0
                        3       24.6
                        4       51.6
             16    830  1         .0
                        2         .0
                        3         .0
                        4         .0
                   930  1         .0
                        2         .0
                        3         .0
                        4         .0
                  1030  1         .0
                        2         .0
                        3         .0
                        4         .0
                  1130  1         .0
                        2         .0
                        3         .0
                        4         .0
                  1300  1         .0
                        2         .0
                        3         .0
                        4         .0
                  1400  1         .0
                        2         .0
                        3         .0
                        4       30.0
                  1500  1         .0
                        2         .0
                        3       21.6
                        4       30.0
             22    830  1         .0
                        2         .0
                        3         .0
                        4         .0
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
78	11	22	930	1	.0
				2	.0
				3	.0
				4	.0
			1030	1	.0
				2	55.4
				3	49.3
				4	60.1
			1130	1	.0
				2	.0
				3	52.4
				4	77.8
			1300	1	.0
				2	.0
				3	35.4
				4	.0
			1400	1	81.6
				2	.0
				3	27.7
				4	73.1
			1500	1	215.6
				2	83.2
				3	.0
				4	63.9
79	4	18	830	1	77.0
				2	67.0
				3	88.5
				4	105.5
			930	1	72.4
				2	61.6
				3	83.2
				4	101.6
			1030	1	68.5
				2	63.1
				3	87.0
				4	61.6
			1130	1	68.5
				2	58.5
				3	73.9
				4	67.8
			1300	1	81.6
				2	80.8
				3	63.1
				4	29.3
			1400	1	73.9
				2	60.8
				3	74.7
				4	55.4
			1500	1	77.0
				2	66.2
				3	70.8

```
                                      VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
79       4     18    1500   4        95.5
               24     830   1          .0
                            2          .0
                            3          .0
                            4          .0
                      930   1          .0
                            2          .0
                            3          .0
                            4          .0
                     1030   1        88.5
                            2        90.1
                            3       109.3
                            4       137.8
                     1130   1        89.3
                            2        77.8
                            3        57.8
                            4       151.7
                     1300   1       117.8
                            2        87.0
                            3        80.8
                            4       119.3
                     1400   1       102.4
                            2        74.7
                            3        98.6
                            4       134.8
                     1500   1       122.4
                            2        73.1
                            3        87.0
                            4       104.7
               30     730   1        71.6
                            2        70.1
                            3        89.3
                            4       100.1
                      830   1        64.7
                            2        65.4
                            3        80.1
                            4        96.3
                      930   1        70.8
                            2        60.1
                            3        80.1
                            4        84.7
                     1030   1        72.4
                            2        60.8
                            3        80.8
                            4        85.5
                     1200   1        67.8
                            2        69.3
                            3        79.3
                            4        92.4
                     1300   1        75.5
                            2        67.0
```

```
                                          VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
79       4      30   1300   3        72.4
                            4        89.3
                     1400   1        83.2
                            2        76.2
                            3        81.6
                            4        83.9
         5       6    730   1        43.9
                            2        54.7
                            3        51.6
                            4        84.7
                      830   1        40.0
                            2        47.7
                            3        52.4
                            4        84.7
                      930   1        38.5
                            2        42.3
                            3        48.5
                                     63.0
                            4        77.8
                     1030   1        74.7
                            2        46.2
                            3        43.1
                            4        80.1
                     1200   1        74.7
                            2        52.4
                            3        47.7
                            4        85.5
                     1300   1        61.6
                            2        63.1
                            3        48.5
                            4        98.6
                     1400   1        63.9
                            2        52.4
                            3        33.1
                            4       104.7
                12    730   1        30.0
                            2        77.0
                            3        84.7
                            4        98.6
                      830   1          .0
                            2          .0
                            3          .0
                            4          .0
                      930   1          .0
                            2          .0
                            3          .0
                            4          .0
                     1030   1          .0
                            2          .0
                            3          .0
                            4          .0
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
79	5	12	1200	1	.0
				2	.0
				3	.0
				4	.0
			1300	1	.0
				2	.0
				3	.0
				4	.0
			1400	1	.0
				2	.0
				3	.0
				4	.0
		18	730	1	54.7
				2	60.1
				3	57.8
				4	127.0
			830	1	63.9
				2	59.3
				3	62.4
				4	110.9
			930	1	59.3
				2	52.4
				3	58.5
				4	115.5
			1030	1	68.5
				2	49.3
				3	57.0
				4	127.8
			1200	1	59.3
				2	52.4
				3	53.1
				4	107.0
			1300	1	73.1
				2	53.9
				3	56.2
				4	107.0
			1400	1	64.7
				2	52.4
				3	53.9
				4	86.2
		24	730	1	92.4
				2	82.4
				3	177.1
				4	.0
			830	1	89.3
				2	86.2
				3	113.2
				4	204.8
			930	1	81.6
				2	83.2
				3	83.9

```
                                            VISUAL
 YEAR    MONTH    DAY    HOUR    VIEW    RANGE
 ----    -----    ---    ----    ----    ------
 79      5        24      930    4        126.3
                         1030    1         81.6
                                 2         86.2
                                 3         98.6
                                 4        174.0
                         1200    1         77.8
                                 2         73.1
                                 3        197.9
                                 4        124.7
                         1300    1        144.0
                                 2         45.4
                                 3         16.2
                                 4        191.7
                         1400    1           .0
                                 2           .0
                                 3           .0
                                 4           .0
                  30      730    1        110.1
                                 2        109.3
                                 3        104.7
                                 4        101.6
                          830    1        110.1
                                 2         96.3
                                 3         98.6
                                 4        161.7
                          930    1        103.9
                                 2         96.3
                                 3         91.6
                                 4        171.7
                         1030    1        100.1
                                 2         99.3
                                 3         96.3
                                 4        155.5
                         1200    1        122.4
                                 2        103.9
                                 3         91.6
                                 4        150.1
                         1300    1        107.0
                                 2         88.5
                                 3         85.5
                                 4        153.2
                         1400    1        103.2
                                 2         87.8
                                 3         82.4
                                 4        140.1
          6        5      730    1         69.3
                                 2         70.8
                                 3         67.0
                                 4        120.9
                          830    1         69.3
                                 2         62.4
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
79	6	5	830	3	66.2
				4	116.3
			930	1	67.0
				2	58.5
				3	67.8
				4	109.3
			1030	1	74.7
				2	57.8
				3	63.1
				4	114.0
			1200	1	78.5
				2	64.7
				3	72.4
				4	112.4
			1300	1	70.8
				2	64.7
				3	76.2
				4	107.0
			1400	1	77.0
				2	69.3
				3	67.0
				4	110.9
		11	730	1	93.2
				2	83.2
				3	112.4
				4	130.1
			830	1	95.5
				2	83.2
				3	94.7
				4	138.6
			930	1	101.6
				2	80.1
				3	100.1
				4	162.5
			1030	1	97.8
				2	82.4
				3	93.2
				4	153.2
			1200	1	105.5
				2	83.9
				3	93.2
				4	180.2
			1300	1	93.2
				2	82.4
				3	88.5
				4	100.9
			1400	1	48.5
				2	81.6
				3	93.2
				4	120.1
	10	4	830	1	103.9

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
79	10	4	830	2	93.9
				3	124.7
				4	142.4
			930	1	97.8
				2	88.5
				3	100.1
				4	143.2
			1030	1	.0
				2	.0
				3	.0
				4	.0
			1130	1	.0
				2	.0
				3	.0
				4	.0
			1300	1	77.0
				2	73.9
				3	98.6
				4	130.1
			1400	1	85.5
				2	70.8
				3	91.6
				4	107.0
			1500	1	85.5
				2	66.2
				3	81.6
				4	112.4
		10	830	1	86.2
				2	66.2
				3	73.1
				4	100.9
			930	1	83.9
				2	66.2
				3	74.7
				4	105.5
			1030	1	75.5
				2	64.7
				3	84.7
				4	111.6
			1130	1	88.5
				2	62.4
				3	107.0
				4	142.4
			1300	1	79.3
				2	63.1
				3	83.2
				4	127.8
			1400	1	89.3
				2	60.8
				3	81.6
				4	120.9

```
                                       VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
79     10      10    1500   1       115.5
                            2        78.5
                            3        80.1
                            4       122.4
               16     830   1        86.2
                            2        62.4
                            3        44.7
                            4       130.1
                      930   1        87.8
                            2        48.5
                            3        74.7
                            4       125.5
                     1030   1        67.0
                            2        50.8
                            3       101.6
                            4       133.2
                     1130   1        75.5
                            2        53.9
                            3        90.1
                            4       132.4
                     1300   1       106.3
                            2        67.8
                            3        72.4
                            4       126.3
                     1400   1        90.9
                            2        54.7
                            3        89.3
                            4        99.3
                     1500   1        93.9
                            2        73.9
                            3        70.8
                            4       110.9
               25     830   1       138.6
                            2        97.8
                            3       118.6
                            4       145.5
                      930   1       112.4
                            2        88.5
                            3       103.2
                            4       134.8
                     1030   1       113.2
                            2        99.3
                            3       134.8
                            4       143.2
                     1130   1       111.6
                            2        90.9
                            3        96.3
                            4       154.8
                     1300   1       107.8
                            2        87.0
                            3       103.2
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
79	10	25	1300	4	132.4
			1400	1	108.6
				2	93.2
				3	100.9
				4	130.9
			1500	1	110.9
				2	90.9
				3	93.2
				4	84.7
		28	830	1	114.7
				2	86.2
				3	105.5
				4	147.1
			930	1	120.9
				2	90.9
				3	87.0
				4	136.3
			1030	1	134.0
				2	117.8
				3	148.6
				4	161.7
			1130	1	93.2
				2	93.2
				3	142.4
				4	177.9
			1300	1	92.4
				2	69.3
				3	140.1
				4	146.3
			1400	1	95.5
				2	76.2
				3	108.6
				4	150.9
			1500	1	129.4
				2	72.4
				3	96.3
				4	162.5
	11	3	830	1	127.0
				2	81.6
				3	96.3
				4	131.7
			930	1	94.7
				2	65.4
				3	68.5
				4	146.3
			1030	1	81.6
				2	68.5
				3	63.9
				4	146.3
			1130	1	94.7
				2	67.8

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
79	11	3	1130	3	67.0
				4	141.7
			1300	1	114.0
				2	100.9
				3	107.8
				4	150.1
			1400	1	127.0
				2	116.3
				3	126.3
				4	169.4
			1500	1	107.0
				2	86.2
				3	132.4
				4	168.6
		9	830	1	57.0
				2	47.0
				3	47.0
				4	67.0
			930	1	75.5
				2	46.2
				3	73.1
				4	85.5
			1030	1	48.5
				2	51.6
				3	53.9
				4	40.0
			1130	1	57.8
				2	52.4
				3	61.6
				4	74.7
			1300	1	83.9
				2	64.7
				3	59.3
				4	99.3
			1400	1	85.5
				2	69.3
				3	73.9
				4	93.9
			1500	1	74.7
				2	81.6
				3	60.8
				4	89.3
		15	830	1	109.3
				2	103.9
				3	143.2
				4	163.2
			930	1	133.2
				2	115.5
				3	136.3
				4	164.8
			1030	1	117.8

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
79	11	15	1030	2	97.0
				3	117.0
				4	181.7
			1130	1	111.6
				2	93.9
				3	115.5
				4	194.8
			1300	1	145.5
				2	109.3
				3	107.8
				4	179.4
			1400	1	130.1
				2	113.2
				3	120.1
				4	169.4
			1500	1	137.1
				2	114.7
				3	117.0
				4	150.9
80	5	4	730	1	83.9
				2	67.0
				3	99.3
				4	107.0
			830	1	80.1
				2	90.1
				3	70.8
				4	189.4
			930	1	109.3
				2	74.7
				3	77.0
				4	132.4
			1030	1	88.5
				2	66.2
				3	86.2
				4	118.6
			1200	1	84.7
				2	66.2
				3	78.5
				4	106.3
			1300	1	60.8
				2	55.4
				3	53.1
				4	131.7
			1400	1	53.1
				2	49.3
				3	114.0
				4	100.9
		10	730	1	77.0
				2	67.0
				3	90.9
				4	68.5

```
                                         VISUAL
YEAR   MONTH   DAY   HOUR    VIEW    RANGE
----   -----   ---   ----    ----    ------
80       5     10     830    1         89.3
                             2         53.1
                             3         67.0
                             4        160.2
                      930    1         68.5
                             2         62.4
                             3         69.3
                             4        136.3
                     1030    1         72.4
                             2         54.7
                             3         80.1
                             4        116.3
                     1200    1        115.5
                             2         78.5
                             3         69.3
                             4        100.1
                     1300    1        103.9
                             2         55.4
                             3         62.4
                             4         87.8
                     1400    1        107.0
                             2         59.3
                             3         63.1
                             4         86.2
               16     730    1         63.1
                             2         68.5
                             3        109.3
                             4         53.1
                      830    1         71.6
                             2         53.9
                             3         36.2
                             4         73.1
                      930    1         75.5
                             2         57.0
                             3         44.7
                             4         84.7
                     1030    1         67.0
                             2         62.4
                             3         49.3
                             4           .0
                     1200    1         70.8
                             2         63.9
                             3         20.0
                             4        106.3
                     1300    1           .0
                             2           .0
                             3           .0
                             4           .0
                     1400    1         49.3
                             2         39.3
                             3         26.2
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
80	5	16	1400	4	78.5
		22	730	1	77.8
				2	73.1
				3	90.9
				4	114.0
			830	1	83.2
				2	70.1
				3	83.9
				4	103.9
			930	1	73.9
				2	67.8
				3	88.5
				4	127.0
			1030	1	80.1
				2	67.0
				3	77.8
				4	100.9
			1200	1	73.1
				2	58.5
				3	64.7
				4	103.2
			1300	1	66.2
				2	56.2
				3	66.2
				4	100.1
			1400	1	67.0
				2	50.0
				3	65.4
				4	92.4
	6	3	730	1	68.5
				2	68.5
				3	83.2
				4	112.4
			830	1	78.5
				2	70.8
				3	87.0
				4	108.6
			930	1	64.7
				2	63.9
				3	70.1
				4	122.4
			1030	1	69.3
				2	58.5
				3	62.4
				4	95.5
			1200	1	58.5
				2	53.9
				3	55.4
				4	103.9
			1300	1	59.3
				2	49.3

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
80	6	3	1300	3	52.4
				4	67.8
			1400	1	57.8
				2	45.4
				3	47.7
				4	71.6
		9	730	1	105.5
				2	79.3
				3	102.4
				4	117.8
			830	1	80.1
				2	77.8
				3	89.3
				4	132.4
			930	1	79.3
				2	82.4
				3	86.2
				4	141.7
			1030	1	88.5
				2	82.4
				3	81.6
				4	155.5
			1200	1	87.0
				2	80.1
				3	105.5
				4	122.4
			1300	1	102.4
				2	84.7
				3	96.3
				4	109.3
			1400	1	97.8
				2	88.5
				3	101.6
				4	127.0
		15	730	1	98.6
				2	78.5
				3	99.3
				4	85.5
			830	1	96.3
				2	78.5
				3	81.6
				4	88.5
			930	1	100.9
				2	77.0
				3	82.4
				4	103.9
			1030	1	101.6
				2	77.8
				3	86.2
				4	120.9
			1200	1	95.5

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
80	6	15	1200	2	87.8
				3	84.7
				4	114.7
			1300	1	114.7
				2	86.2
				3	84.7
				4	125.5
			1400	1	98.6
				2	77.8
				3	96.3
				4	112.4
		21	730	1	69.3
				2	73.1
				3	84.7
				4	86.2
			830	1	67.8
				2	67.8
				3	75.5
				4	93.9
			930	1	84.7
				2	63.1
				3	73.9
				4	112.4
			1030	1	66.2
				2	64.7
				3	73.1
				4	83.9
			1200	1	79.3
				2	67.8
				3	72.4
				4	97.0
			1300	1	75.5
				2	70.8
				3	73.9
				4	88.5
			1400	1	72.4
				2	69.3
				3	71.6
				4	106.3
		27	730	1	57.0
				2	52.4
				3	67.0
				4	71.6
			830	1	58.5
				2	45.4
				3	57.8
				4	74.7
			930	1	60.8
				2	46.2
				3	65.4
				4	78.5

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
80	6	27	1030	1	73.1
				2	56.2
				3	61.6
				4	85.5
			1200	1	72.4
				2	56.2
				3	67.0
				4	95.5
			1300	1	81.6
				2	61.6
				3	69.3
				4	86.2
			1400	1	86.2
				2	66.2
				3	80.1
				4	83.9
	7	3	730	1	82.4
				2	75.5
				3	111.6
				4	105.5
			830	1	90.1
				2	76.2
				3	113.2
				4	143.2
			930	1	77.0
				2	79.3
				3	87.0
				4	105.5
			1030	1	89.3
				2	73.9
				3	137.1
				4	110.1
			1200	1	110.9
				2	80.1
				3	109.3
				4	153.2
			1300	1	88.5
				2	98.6
				3	94.7
				4	127.8
			1400	1	96.3
				2	81.6
				3	100.1
				4	135.5
	10	1	830	1	100.1
				2	83.9
				3	98.6
				4	117.0
			930	1	103.9
				2	89.3
				3	101.6

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
80	10	1	930	4	115.5
			1030	1	90.9
				2	76.2
				3	103.9
				4	123.2
			1130	1	115.5
				2	83.9
				3	98.6
				4	111.6
			1300	1	108.6
				2	82.4
				3	97.8
				4	134.8
			1400	1	110.1
				2	87.8
				3	94.7
				4	126.3
			1500	1	114.7
				2	90.9
				3	90.1
				4	132.4
		7	830	1	84.7
				2	73.9
				3	87.0
				4	108.6
			930	1	79.3
				2	68.5
				3	76.2
				4	97.0
			1030	1	78.5
				2	65.4
				3	83.2
				4	107.8
			1130	1	72.4
				2	64.7
				3	70.1
				4	104.7
			1300	1	78.5
				2	53.9
				3	73.1
				4	102.4
			1400	1	77.0
				2	58.5
				3	77.0
				4	95.5
			1500	1	75.5
				2	63.9
				3	73.1
				4	96.3
		13	830	1	162.5
				2	55.4

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
80	10	13	830	3	77.0
				4	130.1
			930	1	40.8
				2	42.3
				3	99.3
				4	111.6
			1030	1	69.3
				2	44.7
				3	54.7
				4	84.7
			1130	1	71.6
				2	52.4
				3	46.2
				4	80.8
			1300	1	46.2
				2	76.2
				3	27.7
				4	44.7
			1400	1	68.5
				2	52.4
				3	10.0
				4	88.5
			1500	1	72.4
				2	61.6
				3	54.7
				4	71.6
		19	830	1	95.5
				2	73.1
				3	71.6
				4	75.5
			930	1	90.9
				2	71.6
				3	56.2
				4	73.9
			1030	1	87.8
				2	70.1
				3	50.0
				4	42.3
			1130	1	77.0
				2	67.0
				3	42.3
				4	50.8
			1300	1	73.1
				2	73.9
				3	46.2
				4	51.6
			1400	1	80.8
				2	61.6
				3	53.1
				4	73.1
			1500	1	77.8

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
80	10	19	1500	2	60.1
				3	57.8
				4	57.8
		25	830	1	114.0
				2	95.5
				3	115.5
				4	149.4
			930	1	110.1
				2	92.4
				3	113.2
				4	195.6
			1030	1	108.6
				2	88.5
				3	109.3
				4	189.4
			1130	1	111.6
				2	90.9
				3	104.7
				4	143.2
			1300	1	106.3
				2	89.3
				3	99.3
				4	116.3
			1400	1	112.4
				2	89.3
				3	101.6
				4	140.1
			1500	1	114.7
				2	95.5
				3	103.2
				4	131.7
		31	830	1	120.1
				2	87.8
				3	91.6
				4	127.0
			930	1	112.4
				2	93.2
				3	97.0
				4	164.0
			1030	1	107.8
				2	87.0
				3	95.5
				4	117.0
			1130	1	107.0
				2	93.9
				3	102.4
				4	131.7
			1300	1	103.2
				2	85.5
				3	95.5
				4	130.9

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
80	10	31	1400	1	111.6
				2	87.0
				3	103.2
				4	151.7
			1500	1	99.3
				2	87.0
				3	110.9
				4	140.9
	11	6	830	1	93.9
				2	78.5
				3	108.6
				4	132.4
			930	1	103.9
				2	68.5
				3	126.3
				4	150.9
			1030	1	116.3
				2	83.2
				3	130.9
				4	176.3
			1130	1	133.2
				2	109.3
				3	95.5
				4	191.7
			1300	1	152.5
				2	158.6
				3	96.3
				4	183.3
			1400	1	119.3
				2	117.0
				3	127.0
				4	124.7
			1500	1	105.5
				2	80.8
				3	53.1
				4	110.1
		12	830	1	.0
				2	.0
				3	.0
				4	.0
			930	1	.0
				2	.0
				3	.0
				4	.0
			1030	1	.0
				2	.0
				3	.0
				4	.0
			1130	1	.0
				2	.0
				3	.0

```
                                        VISUAL
YEAR   MONTH   DAY   HOUR   VIEW    RANGE
----   -----   ---   ----   ----    ------
80     11      12    1130   4           .0
                     1300   1           .0
                            2           .0
                            3           .0
                            4           .0
                     1400   1           .0
                            2           .0
                            3           .0
                            4           .0
                     1500   1           .0
                            2           .0
                            3           .0
                            4           .0
               18     830   1           .0
                            2           .0
                            3           .0
                            4           .0
                      930   1           .0
                            2           .0
                            3           .0
                            4           .0
                     1030   1           .0
                            2           .0
                            3           .0
                            4           .0
                     1130   1           .0
                            2           .0
                            3           .0
                            4           .0
                     1300   1           .0
                            2           .0
                            3           .0
                            4           .0
                     1400   1           .0
                            2           .0
                            3           .0
                            4           .0
                     1500   1           .0
                            2           .0
                            3           .0
                            4           .0
               24     830   1           .0
                            2           .0
                            3           .0
                            4           .0
                      930   1           .0
                            2           .0
                            3           .0
                            4           .0
                     1030   1           .0
                            2           .0
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
80	11	24	1030	3	.0
				4	.0
			1130	1	.0
				2	.0
				3	.0
				4	.0
			1300	1	52.4
				2	65.4
				3	50.8
				4	25.4
			1400	1	.0
				2	.0
				3	.0
				4	.0
			1500	1	.0
				2	.0
				3	.0
				4	.0
		30	830	1	89.3
				2	92.4
				3	90.9
				4	180.2
			930	1	54.7
				2	58.5
				3	76.2
				4	117.8
			1030	1	53.9
				2	37.7
				3	89.3
				4	125.5
			1130	1	70.8
				2	54.7
				3	60.1
				4	131.7
			1300	1	78.5
				2	54.7
				3	46.2
				4	95.5
			1400	1	98.6
				2	73.1
				3	51.6
				4	67.0
			1500	1	100.1
				2	76.2
				3	73.1
				4	110.9
81	5	8	730	1	121.7
				2	60.8
				3	53.9
				4	81.6
			830	1	67.8

```
                                            VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
81     5       8      830   2        83.9
                            3        61.6
                            4       126.3
                      930   1        57.0
                            2        50.8
                            3        24.6
                            4        70.8
                     1030   1          .0
                            2          .0
                            3          .0
                            4        71.6
                     1200   1          .0
                            2          .0
                            3          .0
                            4          .0
                     1300   1          .0
                            2          .0
                            3          .0
                            4          .0
                     1400   1          .0
                            2          .0
                            3          .0
                            4          .0
               14     730   1       113.2
                            2       107.8
                            3       115.5
                            4       164.8
                      830   1       106.3
                            2       100.9
                            3       107.8
                            4       155.5
                      930   1       102.4
                            2        93.9
                            3        97.0
                            4       157.8
                     1030   1       100.1
                            2        87.8
                            3        93.9
                            4       154.0
                     1200   1        79.3
                            2        83.2
                            3        83.2
                            4       125.5
                     1300   1        74.7
                            2        65.4
                            3        71.6
                            4        89.3
                     1400   1        73.9
                            2        59.3
                            3        74.7
                            4        87.8
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
81	5	21	730	1	41.6
				2	47.0
				3	48.5
				4	100.1
			830	1	47.0
				2	50.8
				3	44.7
				4	82.4
			930	1	40.8
				2	51.6
				3	52.4
				4	93.2
			1030	1	50.0
				2	52.4
				3	50.8
				4	126.3
			1200	1	60.1
				2	57.0
				3	73.9
				4	94.7
			1300	1	64.7
				2	79.3
				3	74.7
				4	93.9
			1400	1	45.4
				2	44.7
				3	47.7
				4	94.7
		27	730	1	67.0
				2	68.5
				3	60.8
				4	99.3
			830	1	68.5
				2	65.4
				3	68.5
				4	96.3
			930	1	67.8
				2	58.5
				3	65.4
				4	63.9
			1030	1	80.8
				2	70.1
				3	68.5
				4	116.3
			1200	1	51.6
				2	57.8
				3	44.7
				4	81.6
			1300	1	78.5
				2	93.9
				3	49.3

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
81	5	27	1300	4	58.5
			1400	1	73.1
				2	60.1
				3	63.1
				4	101.6
		30	730	1	47.0
				2	55.4
				3	63.9
				4	.0
			830	1	48.5
				2	51.6
				3	63.1
				4	80.8
			930	1	49.3
				2	48.5
				3	53.1
				4	67.0
			1030	1	49.3
				2	46.2
				3	49.3
				4	75.5
			1200	1	57.0
				2	47.0
				3	50.8
				4	77.0
			1300	1	53.1
				2	50.8
				3	49.3
				4	73.9
			1400	1	56.2
				2	49.3
				3	49.3
				4	66.2
	6	2	730	1	61.6
				2	54.7
				3	57.8
				4	75.5
			830	1	59.3
				2	53.9
				3	57.0
				4	71.6
			930	1	57.0
				2	53.1
				3	54.7
				4	70.8
			1030	1	56.2
				2	51.6
				3	53.9
				4	77.0
			1200	1	60.8
				2	52.4

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
81	6	2	1200	3	51.6
				4	73.9
			1300	1	57.8
				2	52.4
				3	50.0
				4	70.1
			1400	1	63.9
				2	55.4
				3	52.4
				4	66.2
		5	730	1	71.6
				2	64.7
				3	70.8
				4	103.2
			830	1	63.9
				2	59.3
				3	73.9
				4	88.5
			930	1	71.6
				2	61.6
				3	73.9
				4	93.2
			1030	1	77.0
				2	69.3
				3	69.3
				4	99.3
			1200	1	83.9
				2	73.1
				3	67.8
				4	107.0
			1300	1	90.9
				2	77.8
				3	66.2
				4	101.6
			1400	1	95.5
				2	80.8
				3	77.0
				4	93.9
		8	730	1	87.0
				2	90.1
				3	96.3
				4	115.5
			830	1	72.4
				2	71.6
				3	87.8
				4	118.6
			930	1	66.2
				2	67.0
				3	87.8
				4	125.5
			1030	1	73.1

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
81	6	8	1030	2	67.8
				3	84.7
				4	125.5
			1200	1	79.3
				2	74.7
				3	77.0
				4	112.4
			1300	1	83.2
				2	76.2
				3	87.0
				4	110.9
			1400	1	81.6
				2	77.0
				3	85.5
				4	104.7
		11	730	1	102.4
				2	96.3
				3	107.8
				4	110.1
			830	1	97.8
				2	90.1
				3	97.8
				4	107.0
			930	1	93.9
				2	86.2
				3	88.5
				4	93.9
			1030	1	89.3
				2	79.3
				3	79.3
				4	93.9
			1200	1	77.8
				2	69.3
				3	65.4
				4	99.3
			1300	1	77.0
				2	68.5
				3	67.0
				4	100.9
			1400	1	78.5
				2	68.5
				3	71.6
				4	104.7
		17	730	1	60.1
				2	58.5
				3	58.5
				4	75.5
			830	1	51.6
				2	50.0
				3	47.0
				4	83.2

```
                                  VISUAL
YEAR  MONTH  DAY  HOUR  VIEW   RANGE
----  -----  ---  ----  ----   ------
81      6    17    930  1        60.1
                        2        46.2
                        3        37.7
                        4        68.5
                  1030  1        50.0
                        2        42.3
                        3        39.3
                        4        52.4
                  1200  1        57.0
                        2        45.4
                        3        46.2
                        4        65.4
                  1300  1        78.5
                        2        66.2
                        3        59.3
                        4        74.7
                  1400  1        79.3
                        2        69.3
                        3        67.0
                        4        69.3
        9     3    730  1       117.8
                        2       100.9
                        3        64.7
                        4       244.9
                   830  1        93.2
                        2        78.5
                        3        96.3
                        4       103.9
                   930  1        85.5
                        2        74.7
                        3        95.5
                        4       101.6
                  1030  1        75.5
                        2        67.8
                        3        70.8
                        4        99.3
                  1200  1        72.4
                        2        62.4
                        3        67.0
                        4        95.5
                  1300  1        72.4
                        2        64.7
                        3        75.5
                        4        84.7
                  1400  1        78.5
                        2        56.2
                        3        67.8
                        4        79.3
              9    730  1        81.6
                        2        83.2
                        3       121.7
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
81	9	9	730	4	221.0
			830	1	92.4
				2	70.8
				3	105.5
				4	172.5
			930	1	83.9
				2	72.4
				3	98.6
				4	102.4
			1030	1	93.2
				2	74.7
				3	97.8
				4	93.9
			1200	1	99.3
				2	80.1
				3	87.0
				4	97.0
			1300	1	94.7
				2	80.8
				3	76.2
				4	58.5
			1400	1	125.5
				2	85.5
				3	87.0
				4	40.0
		15	730	1	73.9
				2	66.2
				3	83.2
				4	105.5
			830	1	70.1
				2	63.1
				3	81.6
				4	97.0
			930	1	66.2
				2	62.4
				3	73.1
				4	90.1
			1030	1	67.0
				2	57.8
				3	70.1
				4	94.7
			1200	1	66.2
				2	55.4
				3	66.2
				4	70.1
			1300	1	64.7
				2	54.7
				3	70.1
				4	80.8
			1400	1	67.0
				2	50.8

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
81	9	15	1400	3	55.4
				4	69.3
		21	730	1	67.0
				2	62.4
				3	70.8
				4	72.4
			830	1	64.7
				2	59.3
				3	66.2
				4	78.5
			930	1	60.8
				2	52.4
				3	57.0
				4	67.0
			1030	1	57.8
				2	50.8
				3	54.7
				4	67.8
			1200	1	60.8
				2	49.3
				3	48.5
				4	73.9
			1300	1	57.0
				2	52.4
				3	60.8
				4	73.9
			1400	1	73.9
				2	63.1
				3	98.6
				4	57.0
		24	730	1	62.4
				2	60.8
				3	66.2
				4	98.6
			830	1	72.4
				2	61.6
				3	67.0
				4	78.5
			930	1	64.7
				2	60.8
				3	68.5
				4	78.5
			1030	1	73.9
				2	63.9
				3	67.0
				4	73.9
			1200	1	83.9
				2	73.1
				3	77.8
				4	30.0
			1300	1	100.9

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
81	9	24	1300	2	98.6
				3	82.4
				4	90.9
			1400	1	94.7
				2	82.4
				3	114.0
				4	25.4
	10	6	830	1	68.5
				2	64.7
				3	70.1
				4	83.9
			930	1	70.8
				2	61.6
				3	65.4
				4	85.5
			1030	1	73.9
				2	61.6
				3	65.4
				4	81.6
			1130	1	65.4
				2	61.6
				3	67.0
				4	98.6
			1300	1	66.2
				2	57.0
				3	65.4
				4	89.3
			1400	1	68.5
				2	60.8
				3	64.7
				4	104.7
			1500	1	75.5
				2	59.3
				3	66.2
				4	99.3
		12	830	1	.0
				2	.0
				3	.0
				4	.0
			930	1	.0
				2	.0
				3	.0
				4	.0
			1030	1	56.2
				2	.0
				3	63.9
				4	83.2
			1130	1	.0
				2	80.1
				3	97.0
				4	100.9

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
81	10	12	1300	1	53.9
				2	61.6
				3	.0
				4	90.9
			1400	1	91.6
				2	101.6
				3	95.5
				4	97.8
			1500	1	83.2
				2	78.5
				3	123.2
				4	97.0
		21	830	1	102.4
				2	88.5
				3	107.8
				4	124.7
			930	1	93.9
				2	87.0
				3	93.2
				4	114.0
			1030	1	90.1
				2	77.8
				3	97.8
				4	116.3
			1130	1	85.5
				2	67.0
				3	88.5
				4	108.6
			1300	1	81.6
				2	73.1
				3	81.6
				4	103.2
			1400	1	95.5
				2	68.5
				3	81.6
				4	111.6
			1500	1	87.0
				2	70.8
				3	76.2
				4	111.6
		27	830	1	100.1
				2	87.0
				3	108.6
				4	125.5
			930	1	93.9
				2	89.3
				3	100.1
				4	134.8
			1030	1	82.4
				2	67.0
				3	77.0

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
81	10	27	1030	4	109.3
			1130	1	77.0
				2	67.8
				3	76.2
				4	124.7
			1300	1	95.5
				2	75.5
				3	76.2
				4	102.4
			1400	1	79.3
				2	68.5
				3	70.1
				4	100.9
			1500	1	82.4
				2	87.0
				3	79.3
				4	114.7
	11	4	830	1	114.0
				2	98.6
				3	126.3
				4	166.3
			930	1	107.0
				2	100.1
				3	120.1
				4	174.0
			1030	1	110.9
				2	104.7
				3	114.0
				4	150.1
			1130	1	109.3
				2	100.1
				3	104.7
				4	157.1
			1300	1	112.4
				2	93.9
				3	106.3
				4	134.0
			1400	1	110.1
				2	91.6
				3	103.2
				4	135.5
			1500	1	114.7
				2	93.9
				3	101.6
				4	137.1
82	5	3	730	1	74.7
				2	83.9
				3	97.0
				4	77.0
			830	1	77.8
				2	82.4

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
82	5	3	830	3	73.9
				4	88.5
			930	1	69.3
				2	86.2
				3	70.1
				4	66.2
			1030	1	67.8
				2	80.8
				3	53.9
				4	97.0
			1200	1	45.4
				2	94.7
				3	56.2
				4	149.4
			1300	1	77.8
				2	55.4
				3	101.6
				4	154.8
			1400	1	88.5
				2	77.0
				3	90.9
				4	124.7
		7	730	1	78.5
				2	74.7
				3	75.5
				4	149.4
			830	1	80.8
				2	67.8
				3	87.8
				4	89.3
			930	1	88.5
				2	87.0
				3	84.7
				4	138.6
			1030	1	101.6
				2	80.8
				3	87.0
				4	188.6
			1200	1	121.7
				2	93.2
				3	124.0
				4	199.4
			1300	1	122.4
				2	95.5
				3	118.6
				4	134.8
			1400	1	83.2
				2	98.6
				3	112.4
				4	97.0
		11	730	1	.0

```
                                            VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
82       5     11     730   2          .0
                            3          .0
                            4          .0
                      830   1        61.6
                            2        47.0
                            3        50.8
                            4          .0
                      930   1        46.2
                            2        67.8
                            3       179.4
                            4        83.9
                     1030   1        81.6
                            2          .0
                            3        41.6
                            4          .0
                     1200   1          .0
                            2          .0
                            3        57.8
                            4        91.6
                     1300   1        85.5
                            2        77.8
                            3        77.0
                            4        87.8
                     1400   1          .0
                            2          .0
                            3        56.2
                            4        43.9
               19     730   1        55.4
                            2        61.6
                            3        78.5
                            4        89.3
                      830   1        36.2
                            2        33.9
                            3        80.1
                            4       106.3
                      930   1        49.3
                            2        65.4
                            3        41.6
                            4       123.2
                     1030   1        70.1
                            2        56.2
                            3        48.5
                            4        60.8
                     1200   1        60.8
                            2        55.4
                            3        57.0
                            4        83.2
                     1300   1        69.3
                            2        22.3
                            3        48.5
                            4        65.4
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
82	5	19	1400	1	.0
				2	50.8
				3	20.8
				4	97.0
		23	730	1	63.1
				2	70.1
				3	70.8
				4	94.7
			830	1	60.8
				2	77.0
				3	86.2
				4	107.8
			930	1	53.1
				2	53.1
				3	63.1
				4	87.0
			1030	1	67.8
				2	60.1
				3	66.2
				4	94.7
			1200	1	70.8
				2	70.8
				3	64.7
				4	111.6
			1300	1	73.1
				2	69.3
				3	76.2
				4	100.9
			1400	1	82.4
				2	67.8
				3	64.7
				4	96.3
		27	730	1	77.0
				2	66.2
				3	81.6
				4	120.1
			830	1	82.4
				2	71.6
				3	81.6
				4	100.1
			930	1	79.3
				2	77.8
				3	77.0
				4	102.4
			1030	1	80.8
				2	76.2
				3	79.3
				4	120.9
			1200	1	80.8
				2	90.1
				3	73.9

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
82	5	27	1200	4	102.4
			1300	1	73.9
				2	83.9
				3	80.8
				4	110.1
			1400	1	43.1
				2	73.1
				3	80.8
				4	120.9
	6	4	730	1	95.5
				2	92.4
				3	106.3
				4	141.7
			830	1	89.3
				2	85.5
				3	99.3
				4	134.0
			930	1	83.2
				2	77.8
				3	85.5
				4	122.4
			1030	1	75.5
				2	71.6
				3	77.0
				4	111.6
			1200	1	71.6
				2	72.4
				3	72.4
				4	90.1
			1300	1	67.8
				2	66.2
				3	77.0
				4	86.2
			1400	1	70.8
				2	60.1
				3	62.4
				4	77.8
		8	730	1	75.5
				2	70.8
				3	83.2
				4	93.9
			830	1	73.9
				2	67.8
				3	70.8
				4	94.7
			930	1	67.8
				2	65.4
				3	69.3
				4	90.9
			1030	1	82.4
				2	63.1

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
82	6	8	1030	3	66.2
				4	84.7
			1200	1	78.5
				2	63.9
				3	64.7
				4	95.5
			1300	1	73.1
				2	62.4
				3	66.2
				4	96.3
			1400	1	80.8
				2	64.7
				3	77.0
				4	83.9
		12	730	1	110.9
				2	104.7
				3	134.8
				4	207.1
			830	1	92.4
				2	87.8
				3	98.6
				4	130.1
			930	1	97.0
				2	92.4
				3	98.6
				4	133.2
			1030	1	95.5
				2	86.2
				3	93.9
				4	125.5
			1200	1	97.8
				2	100.1
				3	87.0
				4	59.3
			1300	1	100.1
				2	94.7
				3	95.5
				4	130.9
			1400	1	107.8
				2	95.5
				3	77.0
				4	117.8
		16	730	1	94.7
				2	90.1
				3	91.6
				4	123.2
			830	1	90.9
				2	83.2
				3	92.4
				4	134.8
			930	1	98.6

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
82	6	16	930	2	86.2
				3	112.4
				4	134.8
			1030	1	83.2
				2	77.8
				3	84.7
				4	93.9
			1200	1	102.4
				2	85.5
				3	87.8
				4	132.4
			1300	1	107.0
				2	80.8
				3	100.1
				4	125.5
			1400	1	103.9
				2	111.6
				3	101.6
				4	134.0
	9	4	730	1	83.9
				2	69.3
				3	81.6
				4	86.2
			830	1	78.5
				2	73.1
				3	77.8
				4	91.6
			930	1	77.8
				2	60.8
				3	76.2
				4	104.7
			1030	1	73.9
				2	68.5
				3	67.0
				4	96.3
			1200	1	77.0
				2	73.9
				3	75.5
				4	74.7
			1300	1	69.3
				2	65.4
				3	79.3
				4	77.8
			1400	1	85.5
				2	57.8
				3	83.9
				4	89.3
		8	730	1	.0
				2	.0
				3	.0
				4	.0

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
82	9	8	830	1	104.7
				2	84.7
				3	26.2
				4	57.8
			930	1	85.5
				2	71.6
				3	71.6
				4	72.4
			1030	1	93.2
				2	73.1
				3	79.3
				4	108.6
			1200	1	88.5
				2	74.7
				3	104.7
				4	104.7
			1300	1	67.0
				2	75.5
				3	124.0
				4	154.0
			1400	1	105.5
				2	40.8
				3	60.1
				4	151.7
		16	730	1	101.6
				2	100.9
				3	117.0
				4	222.5
			830	1	93.2
				2	94.7
				3	110.9
				4	154.0
			930	1	88.5
				2	80.8
				3	105.5
				4	139.4
			1030	1	93.2
				2	87.8
				3	95.5
				4	120.1
			1200	1	98.6
				2	84.7
				3	96.3
				4	118.6
			1300	1	102.4
				2	86.2
				3	84.7
				4	140.9
			1400	1	107.0
				2	86.2
				3	91.6

```
                                   VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
82       9     16    1400   4       121.7
               20     730   1       125.5
                            2       134.0
                            3       120.9
                            4          .0
                      830   1        86.2
                            2        77.0
                            3        48.5
                            4        23.9
                      930   1        80.1
                            2        70.8
                            3        97.8
                            4        67.0
                     1030   1        87.8
                            2        57.0
                            3        92.4
                            4       102.4
                     1200   1        90.1
                            2        73.9
                            3        90.1
                            4       136.3
                     1300   1        97.0
                            2        77.8
                            3        74.7
                            4        75.5
                     1400   1       102.4
                            2        73.1
                            3        78.5
                            4       114.0
               24     730   1        94.7
                            2        90.1
                            3       101.6
                            4       135.5
                      830   1        93.2
                            2        83.9
                            3        93.9
                            4       125.5
                      930   1        96.3
                            2        78.5
                            3        88.5
                            4       124.7
                     1030   1        90.9
                            2        80.8
                            3        86.2
                            4       124.0
                     1200   1        94.7
                            2        87.8
                            3        92.4
                            4       128.6
                     1300   1       119.3
                            2        90.1
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
82	9	24	1300	3	103.9
				4	131.7
			1400	1	100.1
				2	107.0
				3	98.6
				4	142.4
		28	730	1	88.5
				2	134.0
				3	106.3
				4	50.8
			830	1	72.4
				2	57.0
				3	66.2
				4	42.3
			930	1	78.5
				2	108.6
				3	120.1
				4	177.1
			1030	1	69.3
				2	57.8
				3	77.8
				4	94.7
			1200	1	66.2
				2	67.0
				3	53.9
				4	120.9
			1300	1	46.2
				2	71.6
				3	16.2
				4	.0
			1400	1	68.5
				2	93.2
				3	143.2
				4	150.9
	10	2	830	1	112.4
				2	83.2
				3	108.6
				4	136.3
			930	1	96.3
				2	80.1
				3	105.5
				4	125.5
			1030	1	94.7
				2	80.1
				3	90.9
				4	118.6
			1130	1	89.3
				2	77.0
				3	107.8
				4	120.1
			1300	1	90.9

```
                                          VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
82     10        2   1300   2        61.6
                            3        93.2
                            4       124.7
                     1400   1        93.9
                            2        73.9
                            3        94.7
                            4       123.2
                     1500   1        97.0
                            2        74.7
                            3        86.2
                            4       120.1
                 6    830   1          .0
                            2          .0
                            3        68.5
                            4       127.8
                      930   1          .0
                            2          .0
                            3        50.8
                            4        97.0
                     1030   1          .0
                            2          .0
                            3        38.5
                            4        90.9
                     1130   1        61.6
                            2        51.6
                            3        50.0
                            4        93.9
                     1300   1        83.2
                            2        74.7
                            3        91.6
                            4       108.6
                     1400   1        97.8
                            2        80.8
                            3        93.2
                            4       138.6
                     1500   1       103.9
                            2        82.4
                            3        94.7
                            4       129.4
                10    830   1       103.2
                            2        90.1
                            3       124.7
                            4       137.1
                      930   1       103.2
                            2        91.6
                            3        60.8
                            4       116.3
                     1030   1        91.6
                            2        80.8
                            3        86.2
                            4        97.8
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
82	10	10	1130	1	96.3
				2	77.0
				3	69.3
				4	57.0
			1300	1	94.7
				2	81.6
				3	92.4
				4	79.3
			1400	1	101.6
				2	83.9
				3	74.7
				4	67.0
			1500	1	121.7
				2	103.2
				3	121.7
				4	171.7
		14	830	1	70.8
				2	67.0
				3	60.8
				4	103.9
			930	1	74.7
				2	68.5
				3	65.4
				4	114.7
			1030	1	89.3
				2	84.7
				3	83.9
				4	117.8
			1130	1	83.9
				2	69.3
				3	90.1
				4	139.4
			1300	1	84.7
				2	70.1
				3	77.0
				4	131.7
			1400	1	83.9
				2	71.6
				3	67.0
				4	143.2
			1500	1	83.9
				2	75.5
				3	67.8
				4	117.8
		18	830	1	96.3
				2	83.2
				3	97.8
				4	141.7
			930	1	90.9
				2	81.6
				3	93.2

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
82	10	18	930	4	114.0
			1030	1	87.0
				2	75.5
				3	95.5
				4	126.3
			1130	1	89.3
				2	68.5
				3	123.2
				4	114.7
			1300	1	97.8
				2	80.1
				3	117.0
				4	137.1
			1400	1	94.7
				2	82.4
				3	84.7
				4	129.4
			1500	1	95.5
				2	73.1
				3	84.7
				4	114.7
		22	830	1	127.8
				2	99.3
				3	137.1
				4	113.2
			930	1	101.6
				2	95.5
				3	109.3
				4	150.1
			1030	1	100.9
				2	112.4
				3	117.0
				4	138.6
			1130	1	118.6
				2	77.0
				3	146.3
				4	155.5
			1300	1	100.1
				2	82.4
				3	147.1
				4	188.6
			1400	1	103.2
				2	85.5
				3	110.1
				4	187.1
			1500	1	113.2
				2	100.1
				3	69.3
				4	156.3
83	5	4	830	1	65.0
				2	57.0

```
                                          VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
83     5       4      830   3        50.0
                            4        64.0
                      930   1        74.0
                            2        51.0
                            3        57.0
                            4        84.0
                     1030   1        83.0
                            2        63.0
                            3        74.0
                            4        90.0
                     1130   1        83.0
                            2        69.0
                            3        62.0
                            4        51.0
                     1300   1        88.0
                            2        82.0
                            3        57.0
                            4        70.0
                     1400   1        90.0
                            2        81.0
                            3        43.0
                            4        41.0
                     1500   1        96.0
                            2        81.0
                            3        61.0
                            4        71.0
               12     830   1       123.0
                            2        97.0
                            3        88.0
                            4        75.0
                      930   1        99.0
                            2        92.0
                            3        72.0
                            4       148.0
                     1030   1       121.0
                            2        80.0
                            3        96.0
                            4       110.0
                     1130   1        99.0
                            2        75.0
                            3        65.0
                            4        79.0
                     1300   1        82.0
                            2        74.0
                            3        56.0
                            4       114.0
                     1400   1        61.0
                            2        65.0
                            3        69.0
                            4       106.0
                     1500   1        74.0
```

```
                                             VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
83       5     12    1500   2          .0
                            3        64.0
                            4        93.0
               24     830   1        89.0
                            2        85.0
                            3        81.0
                            4       121.0
                      930   1        88.0
                            2        75.0
                            3        72.0
                            4       100.0
                     1030   1        82.0
                            2        70.0
                            3        70.0
                            4        82.0
                     1130   1        84.0
                            2        75.0
                            3        63.0
                            4        63.0
                     1300   1        83.0
                            2        75.0
                            3        60.0
                            4        35.0
                     1400   1        91.0
                            2        82.0
                            3        58.0
                            4        42.0
                     1500   1        97.0
                            2        90.0
                            3        60.0
                            4        75.0
               28     830   1        77.0
                            2        72.0
                            3        67.0
                            4       102.0
                      930   1        72.0
                            2        70.0
                            3        59.0
                            4       101.0
                     1030   1        70.0
                            2        66.0
                            3        55.0
                            4        82.0
                     1130   1        71.0
                            2        65.0
                            3        53.0
                            4       107.0
                     1300   1        74.0
                            2        70.0
                            3        43.0
                            4        48.0
```

```
                                      VISUAL
YEAR  MONTH  DAY  HOUR   VIEW   RANGE
----  -----  ---  ----   ----   ------
83     5     28   1400   1        76.0
                         2        69.0
                         3        48.0
                         4        40.0
                  1500   1        82.0
                         2        65.0
                         3        79.0
                         4        93.0
       6      1    830   1        32.0
                         2        43.0
                         3        25.0
                         4        50.0
                   930   1        46.0
                         2        37.0
                         3        44.0
                         4        51.0
                  1030   1        44.0
                         2        42.0
                         3        35.0
                         4        55.0
                  1130   1        37.0
                         2        52.0
                         3        42.0
                         4        48.0
                  1300   1        42.0
                         2        45.0
                         3        35.0
                         4        41.0
                  1400   1        54.0
                         2        51.0
                         3        40.0
                         4        59.0
                  1500   1        59.0
                         2        47.0
                         3        34.0
                         4        43.0
              5    830   1          .0
                         2          .0
                         3        28.0
                         4          .0
                   930   1       113.0
                         2        75.0
                         3          .0
                         4          .0
                  1030   1       117.0
                         2        93.0
                         3        71.0
                         4        61.0
                  1130   1       108.0
                         2        89.0
                         3        66.0
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
83	6	5	1130	4	59.0
			1300	1	93.0
				2	54.0
				3	54.0
				4	100.0
			1400	1	104.0
				2	81.0
				3	51.0
				4	79.0
			1500	1	118.0
				2	82.0
				3	86.0
				4	74.0
		9	830	1	75.0
				2	74.0
				3	73.0
				4	101.0
			930	1	75.0
				2	71.0
				3	63.0
				4	89.0
			1030	1	70.0
				2	69.0
				3	59.0
				4	90.0
			1130	1	87.0
				2	82.0
				3	91.0
				4	83.0
			1300	1	66.0
				2	56.0
				3	51.0
				4	24.0
			1400	1	68.0
				2	50.0
				3	29.0
				4	30.0
			1500	1	69.0
				2	79.0
				3	52.0
				4	83.0
		13	830	1	126.0
				2	91.0
				3	79.0
				4	92.0
			930	1	97.0
				2	90.0
				3	54.0
				4	86.0
			1030	1	110.0
				2	104.0

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
83	6	13	1030	3	67.0
				4	56.0
			1130	1	76.0
				2	65.0
				3	71.0
				4	69.0
			1300	1	86.0
				2	64.0
				3	45.0
				4	57.0
			1400	1	68.0
				2	83.0
				3	64.0
				4	49.0
			1500	1	119.0
				2	62.0
				3	118.0
				4	105.0
		21	830	1	89.0
				2	78.0
				3	69.0
				4	96.0
			930	1	80.0
				2	72.0
				3	66.0
				4	86.0
			1030	1	81.0
				2	68.0
				3	55.0
				4	81.0
			1130	1	80.0
				2	71.0
				3	59.0
				4	80.0
			1300	1	85.0
				2	65.0
				3	55.0
				4	77.0
			1400	1	93.0
				2	76.0
				3	56.0
				4	72.0
			1500	1	93.0
				2	78.0
				3	56.0
				4	72.0
		25	830	1	.0
				2	.0
				3	113.0
			930	1	.0
				2	90.0

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
83	6	25	930	3	.0
				4	85.0
			1030	1	61.0
				2	56.0
				3	52.0
				4	89.0
			1130	1	68.0
				2	50.0
				3	54.0
				4	61.0
			1300	1	66.0
				2	59.0
				3	50.0
				4	46.0
			1400	1	69.0
				2	64.0
				3	52.0
				4	.0
			1500	1	71.0
				2	61.0
				3	34.0
				4	46.0
	9	1	830	1	99.0
				2	95.0
				3	91.0
				4	135.0
					127.0
			930	1	94.0
				2	87.0
				3	82.0
				4	127.0
					110.0
			1030	1	86.0
				2	70.0
				3	72.0
				4	133.0
					108.0
			1130	1	53.0
				2	77.0
				3	68.0
				4	136.0
					106.0
			1300	1	102.0
				2	106.0
				3	84.0
				4	60.0
					119.0
			1400	1	79.0
				2	106.0
				3	51.0
				4	68.0

```
                                             VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
83       9       1   1400   4       120.0
                     1500   1        96.0
                            2        87.0
                            3        74.0
                            4        76.0
                 9    830   1        85.0
                            2        67.0
                            3        69.0
                            4        92.0
                      930   1        73.0
                            2        58.0
                            3        57.0
                            4        90.0
                     1030   1        71.0
                            2        62.0
                            3        57.0
                            4        79.0
                     1130   1        70.0
                            2        62.0
                            3        63.0
                            4        78.0
                     1300   1        73.0
                            2        60.0
                            3        46.0
                            4        84.0
                     1400   1        88.0
                            2        65.0
                            3        45.0
                            4        61.0
                     1500   1        80.0
                            2        67.0
                            3        50.0
                            4        68.0
                17    830   1        96.0
                            2        86.0
                            3        81.0
                            4       102.0
                      930   1        74.0
                            2        70.0
                            3        46.0
                            4        92.0
                     1030   1        75.0
                            2        68.0
                            3        64.0
                            4        82.0
                     1130   1        72.0
                            2        54.0
                            3        62.0
                            4        92.0
                     1300   1        78.0
                            2        67.0
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
83	9	17	1300	3	55.0
				4	68.0
			1400	1	88.0
				2	73.0
				3	55.0
				4	74.0
			1500	1	72.0
				2	60.0
				3	44.0
				4	89.0
		21	830	1	104.0
				2	98.0
				3	93.0
				4	134.0
			930	1	93.0
				2	89.0
				3	83.0
				4	104.0
			1030	1	105.0
				2	88.0
				3	78.0
				4	110.0
			1130	1	96.0
				2	72.0
				3	72.0
				4	94.0
			1300	1	86.0
				2	81.0
				3	65.0
				4	81.0
			1400	1	83.0
				2	81.0
				3	59.0
				4	79.0
			1500	1	104.0
				2	80.0
				3	57.0
				4	75.0
		29	830	1	107.0
				2	107.0
				3	83.0
				4	91.0
			930	1	105.0
				2	98.0
				3	92.0
				4	138.0
			1030	1	96.0
				2	87.0
				3	91.0
				4	118.0
			1130	1	118.0

```
                                          VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
83       9      29   1130   2        91.0
                            3        81.0
                            4        94.0
                     1300   1       133.0
                            2       134.0
                            3        76.0
                            4        84.0
                     1400   1       121.0
                            2       100.0
                            3        88.0
                            4        90.0
                     1500   1       144.0
                            2        91.0
                            3       108.0
                            4        96.0
        10       3    830   1        51.0
                            2        33.0
                            3        92.0
                            4       130.0
                      930   1          .0
                            2        39.0
                            3        38.0
                            4        89.0
                     1030   1          .0
                            2        32.0
                            3        30.0
                            4        67.0
                     1130   1          .0
                            2        44.0
                            3        73.0
                            4        50.0
                     1300   1          .0
                            2          .0
                            3          .0
                            4          .0
                     1400   1          .0
                            2          .0
                            3        45.0
                            4          .0
                     1500   1          .0
                            2        56.0
                            3          .0
                            4          .0
                11    830   1       117.0
                            2       108.0
                            3       118.0
                            4        78.0
                      930   1       104.0
                            2       102.0
                            3        62.0
                            4        84.0
```

YEAR	MONTH	DAY	HOUR	VIEW	VISUAL RANGE
83	10	11	1030	1	81.0
				2	93.0
				3	71.0
				4	100.0
			1130	1	129.0
				2	87.0
				3	71.0
				4	78.0
			1300	1	91.0
				2	85.0
				3	78.0
				4	85.0
			1400	1	112.0
				2	90.0
				3	47.0
				4	66.0
			1500	1	117.0
				2	90.0
				3	58.0
				4	74.0
		15	830	1	75.0
				2	62.0
				3	64.0
				4	83.0
			930	1	83.0
				2	56.0
				3	63.0
				4	75.0
			1030	1	76.0
				2	78.0
				3	64.0
				4	88.0
			1130	1	82.0
				2	59.0
				3	61.0
				4	85.0
			1300	1	80.0
				2	64.0
				3	63.0
				4	102.0
			1400	1	61.0
				2	68.0
				3	53.0
				4	84.0
			1500	1	85.0
				2	65.0
				3	91.0
				4	41.0
		19	830	1	126.0
				2	118.0
				3	106.0

```
                                      VISUAL
YEAR  MONTH  DAY  HOUR  VIEW   RANGE
----  -----  ---  ----  ----   ------
83    10     19    830  4       137.0
                   930  1       112.0
                        2        98.0
                        3        88.0
                        4       124.0
                  1030  1       104.0
                        2       100.0
                        3        87.0
                        4       115.0
                  1130  1       107.0
                        2        98.0
                        3        77.0
                        4       103.0
                  1300  1        95.0
                        2        97.0
                        3        73.0
                        4        90.0
                  1400  1       107.0
                        2        84.0
                        3        67.0
                        4        92.0
                  1500  1       119.0
                        2        99.0
                        3        65.0
                        4        82.0
             27    830  1       120.0
                        2       103.0
                        3       101.0
                        4       141.0
                   930  1       102.0
                        2        93.0
                        3        88.0
                        4       119.0
                  1030  1       102.0
                        2        91.0
                        3        75.0
                        4       100.0
                  1130  1        89.0
                        2        88.0
                        3        72.0
                        4        93.0
                  1300  1       107.0
                        2        73.0
                        3        69.0
                        4        94.0
                  1400  1       103.0
                        2        80.0
                        3        61.0
                        4        91.0
                  1500  1       105.0
                        2        91.0
```

```
                                       VISUAL
YEAR   MONTH   DAY   HOUR   VIEW   RANGE
----   -----   ---   ----   ----   ------
83     10      27    1500   3        60.0
                            4        84.0
```

MEAN DAILY VISUAL RANGE BY VIEW
1983

DATE	VIEW	MILE
04MAY83	1	82
04MAY83	2	69
04MAY83	3	57
04MAY83	4	67
12MAY83	1	94
12MAY83	2	69
12MAY83	3	72
12MAY83	4	103
24MAY83	1	87
24MAY83	2	78
24MAY83	3	66
24MAY83	4	74
28MAY83	1	74
28MAY83	2	68
28MAY83	3	57
28MAY83	4	81
01JUN83	1	44
01JUN83	2	45
01JUN83	3	36
01JUN83	4	49
05JUN83	1	93
05JUN83	2	67
05JUN83	3	50
05JUN83	4	53
09JUN83	1	72
09JUN83	2	68
09JUN83	3	59
09JUN83	4	71
13JUN83	1	97
13JUN83	2	79
13JUN83	3	71
13JUN83	4	73
21JUN83	1	85
21JUN83	2	72
21JUN83	3	59
21JUN83	4	80
25JUN83	1	47
25JUN83	2	54
25JUN83	3	50
25JUN83	4	54
01SEP83	1	87
01SEP83	2	89
01SEP83	3	74
01SEP83	4	109
09SEP83	1	77
09SEP83	2	63
09SEP83	3	55
09SEP83	4	78
17SEP83	1	79
17SEP83	2	68
17SEP83	3	58
17SEP83	4	85
21SEP83	1	95
21SEP83	2	84
21SEP83	3	72

Table 1.3.3-2 (cont)

MEAN DAILY VISUAL RANGE BY VIEW
1983

DATE	VIEW	MILE
21SEP83	4	96
29SEP83	1	117
29SEP83	2	101
29SEP83	3	88
29SEP83	4	101
03OCT83	1	7
03OCT83	2	29
03OCT83	3	39
03OCT83	4	48
11OCT83	1	107
11OCT83	2	93
11OCT83	3	72
11OCT83	4	80
15OCT83	1	77
15OCT83	2	64
15OCT83	3	65
15OCT83	4	79
19OCT83	1	110
19OCT83	2	99
19OCT83	3	80
19OCT83	4	106
27OCT83	1	104
27OCT83	2	88
27OCT83	3	75
27OCT83	4	103

TABLE 1.3.3-3

MEAN SEASONAL VISUAL RANGE BY VIEW

SEASON	YEAR	VIEW	MILE
SPRING	83	1	67
SPRING	83	2	69
SPRING	83	3	57
SPRING	83	4	56
FALL	83	1	52
FALL	83	2	66
FALL	83	3	64
FALL	83	4	59

ATMOSPHERIC
DIFFUSION STUDIES

1.3.4 Atmospheric Diffusion Studies

Atmospheric diffusion modeling studies were completed in the Fall of 1982 and reported in the January 1983 Environmental Monitoring Report. No new modeling studies were conducted during this reporting period.

INVERSION STUDIES

1.3.5 Inversion Studies

No temperature inversion heights are being measured during the Interim Monitoring Period.

AIR QUALITY
ASSURANCE

1.3.6 Air Quality Assurance

1.3.6.1 Quality Assurance Program

The quality assurance program and procedures have been documented in Air Monitoring Quality Assurance Manual and Standard Operating Procedures, Cathedral Bluffs Shale Oil Co., August 1981. This document was submitted in August 1981 to EPA, Region VIII for approval. Copies were also sent to the Oil Shale Project Office and the Colorado State Department of Health.

These quality assurance procedures define requirements for instrument selection, installation, calibration, maintenance and auditing in accordance with regulations of the Clean Air Act. These procedures are followed by on-site personnel regarding air monitoring equipment. Copies of the quality assurance manual are retained in each air quality trailer for easy reference; these include standard forms for recording calibrations, repairs and data problems.

1.3.6.2 Station "Up-Time" Summaries

For this operational period air quality station AB23 and the co-located 60-m meteorological tower (AA23) have been in continuous operation. Monthly summaries of data acquisition instrument efficiencies (or "up-time") have been included in each monthly air quality data report. These monthly efficiencies are summarized on Table 1.3.6-1 for this reporting period.

1.3.6.3 Air Quality Audit Summaries

Air quality audits have been conducted by either an independent consultant or by CB Environmental Services' Grand Junction Office personnel at Station AB23 since 1976. Audit results from December 1981 to present are reported in Table 1.3.6-2. Audit performance goals for the instruments are to achieve values of β within + 10% of unity where

$$C_2 = \beta C_1 + \alpha$$

C_2 = Concentration of gas obtained by audit service
C_1 = Concentration of gas obtained by station calibration
β = Constant = Linear slope of regression line
α = Constant = C_2 intercept of regression line

Thus a β of 1.0 and an α of 0.0 indicate perfect agreement between station and the audit.

In addition, in December 1981 a systems audit was conducted by EPA, Region VIII's independent contractor. Audit recommendations and actions taken by CB were reported in the previous data report.

TABLE 1.3.6-1

Instrument "Up-Time" - Sta. AB23, AA23 - 1983

Channel		Month											
		J	F	M	A	M	J	J	A	S	O	N	D
NO_x		99	100	96	100	98	100	95	100	100	100	100	
NO		99	100	96	100	98	100	95	100	100	100	100	
NO_2		99	100	96	100	98	100	95	100	100	100	100	
O_3		64	66	100	100	98	100	95	100	37	86	100	
CO		99	100	100	100	98	100	95	100	100	100	100	
SO_2		99	100	100	100	98	100	95	100	100	100	100	
H_2S		91	100	100	100	98	100	95	100	100	100	100	
TSP		100	100	100	100	100	86	100	100	100	100	100	
Wind Speed	10m	99	100	98	99	96	100	95	100	100	100	100	
	30m	99	100	98	99	96	100	95	100	100	100	100	
	60m	99	100	99	99	98	100	95	100	100	100	100	
Wind Direction	10m	99	100	98	99	96	100	95	100	100	100	99	
	30m	99	100	98	99	96	100	95	100	100	100	100	
	60m	99	100	99	99	98	100	95	100	100	100	100	
Sigma Wind Dir.	10m	99	100	98	99	96	100	95	100	100	100	99	
	30m	99	100	98	99	96	100	95	100	100	100	100	
	60m	99	100	99	99	98	100	95	100	100	100	100	
Temperature	10m	99	100	100	100	98	100	95	100	100	100	100	
	30m	99	100	100	100	98	100	95	100	100	100	100	
	60m	99	100	100	100	98	100	95	100	100	100	100	
Delta Temperature		99	100	100	100	98	100	95	100	100	100	100	
Relative Humidity		98	88	100	100	99	100	95	100	100	100	100	
Solar Radiation		68	100	8	75	78	98	95	100	100	100	100	
Barometric Pressure		99	100	100	100	98	100	95	100	100	100	100	
Precipitation		77	0	0	0	24	100	95	100	100	100	100	

TABLE 1.3.6-2 AIR QUALITY AUDIT RESULTS AT C-b TRACT

STATION	INSTRUMENT	β Value														
		12/28/81	4/1/82	6/15/82	9/28/82	12/12/82	3/31/83	6/28/83	8/29/83							
AB23	NO	1.040	0.974	1.002	1.026	0.995	0.962	0.973	1.040							
	NO_x	1.031	0.980	1.041	1.043	0.995	0.980	0.930	1.057							
	NO_2	(2)	1.023	0.968	0.996	0.987	0.933	0.969	1.028							
	SO_2	0.974	0.998	0.931	0.972	0.893	0.975	0.997	0.966							
	H_2S	Down	1.033	1.007	(5)	(5)	(5)	(5)	(5)							
	CO	0.982	0.974	0.977	1.005	1.022	1.023	0.962	1.057							
	O_3	0.993	0.999	0.976	0.961	0.970	0.981	1.023	0.999							
AB20	NO	Down	(3)	(3)	(3)	(3)	(3)	(3)	(3)							
	NO_x	Down														
	NO_2	Down														
	SO_2	0.942														
	CO	1.005														
	O_3	1.019														
AB26	NO	0.962	0.964	1.017	(3)	(3)	(3)	(3)	(3)							
	NO_x	0.957	0.965	1.042												
	NO_2	(2)	0.979	1.020												
	SO_2	0.989	1.082	0.993												
	H_2S	0.971	1.017	1.039												
	CO	1.049	0.975	1.042												
	O_3	1.022	0.878	0.917												
Audit Agency (4)		CB E/S	CB E/S	CB E/S	APCD	NAR	APCD	EPA	APCD							

(2) Malfunction of gas phase titration channel of the audit device.
(3) Station discontinued.
(4) NAR = North American Rockwell, EPA Contractor.
APCD = Colorado Air Pollution Control Division.
EPA = Environmental Protection Agency, Region VIII.
CB E/S = Cathedral Bluffs Environmental Services Department, Grand Junction.
(5) Not Audited.

1.3.6.4 Air Quality Precision Checks

The procedures followed for precision calculations were set forth in the CB Quality Assurance Manual and are identical to those contained in *Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)*, EPA-450/4-80-012, November 1980. The precision probability limits and percentage differences for both gases (automated analyzers) and particulates (manual hi-vol analyzer) are presented in Table 1.3.6-3 for the April-June 1983, and July-September 1983 quarters.

TABLE 1.3.6-3

Single Analyzer Precision - C-b Tract

Station AB23 Time Period - April - June 1983

Gas	Instrument	No. of Paired Samples	Mean Differences $\overline{d}j$ (%)	Standard Deviation Sj (%)	Upper 95% Limit (%)	Lower 95% Limit (%)	Automated (A) or Manual (M)
SO_2	Teco 43 P.F.	6	-1.81	4.80	0.16	-3.77	A
NO_2	ML8840E C	6	-0.19	4.87	1.77	-2.15	A
O_3	Dasibi 1003RS UV	6	-2.23	2.07	-0.27	-4.19	A
CO	Beckman 866 IR	6	-1.37	3.17	0.59	-3.33	A
H_2S	Teco 45 PF	6	0.66	3.76	2.62	-1.30	A
TSP	Hi-vol	5	3.64	7.65	18.63	-11.35	M

P.F. = Pulsed Fluorescence
C = Chemiluminescence
IR = Infrared
UV = Ultraviolet Absorption

TABLE 1.3.6-3

Single Analyzer Precision - C-b Tract

Station AB23 Time Period - July - September 1983

Gas	Instrument	No. of Paired Samples	Mean Differences $\overline{d}j$ (%)	Standard Deviation Sj (%)	Upper 95% Limit (%)	Lower 95% Limit (%)	Automated (A) or Manual (M)
SO_2	Teco 43 P.F.	5	-4.21	8.31	-2.25	-6.17	A
NO_2	ML8840E C	5	0.29	1.93	4.07	-3.49	A
O_3	Dasibi 1003RS UV	5	-1.91	2.50	0.05	-3.87	A
CO	Beckman 866 IR	5	-3.97	6.82	-2.01	-5.93	A
H_2S	Teco 45 PF	5	0.75	6.33	1.21	2.71	A
TSP	Hi-vol	9	-2.33	4.29	6.08	-10.74	M

P.F. = Pulsed Fluorescence
C = Chemiluminescence
IR = Infrared
UV = Ultraviolet Absorption

1.3.7 Data Reports

This section includes monthly data reports for June through November 1983, as required by the Interim Monitoring Plan.

SEPTEMBER

JUNE

JULY

AUGUST

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NITRIC OXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	1	0	0	0	0	0	1	1	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	1
2	1	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1
3	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	1
4	1	0	0	0	1	0	1	0	1	0	1	1	1	0	0	1	0	0	1	0	1	0	0	1	1	1
5	1	1	0	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	1	0	1
6	0	0	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	2	0	2
7	0	1	1	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	1	1	1	0	0	1	1	1
8	0	0	0	0	0	0	0	1	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	1	1	1	1	1	1	0	1	1	1
9	1	0	1	1	1	1	1	0	1	1	0	1	1	1	0	1	0	0	0	1	1	0	0	1	1	1
10	0	1	0	1	1	1	1	0	0	0	1	1	1	0	1	1	1	1	0	1	1	1	0	2	1	2
11	1	1	1	0	0	1	1	0	0	1	0	0	1	0	0	0	0	0	1	0	1	0	1	2	1	2
12	1	1	1	0	1	0	1	1	1	1	0	0	1	0	1	1	0	0	1	0	1	1	0	1	1	1
13	1	1	1	1	0	0	1	0	0	1	1	0	1	1	1	0	0	0	1	1	0	1	0	1	1	1
14	0	1	0	1	0	0	1	1	0	1	1	0	0	1	1	0	1	0	1	1	0	0	1	2	1	2
15	0	1	1	1	1	0	1	1	1	0	0	0	0	0	1	0	1	0	0	1	0	0	1	1	1	1
16	1	0	1	0	0	0	1	0	1	0	1	0	0	0	0	0	1	0	0	1	1	0	0	1	0	1
17	0	0	0	1	0	1	0	0	1	1	0	1	1	0	1	0	0	0	1	0	0	0	0	1	0	1
18	0	1	1	0	1	1	0	1	1	1	0	0	0	0	1	0	1	1	0	1	0	0	1	1	1	1
19	0	1	1	0	0	1	1	1	1	0	0	1	0	1	0	0	1	0	1	1	1	1	0	1	1	1
20	0	0	0	1	0	1	0	0	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	1	0	1
21	0	1	0	1	0	0	1	1	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0	1	0	1
22	0	0	1	0	1	1	0	0	0	1	0	0	1	1	1	0	0	0	0	0	0	0	1	1	0	1
23	0	0	0	1	0	0	0	1	1	0	1	0	0	0	0	1	0	0	0	1	0	0	0	2	0	2
24	0	1	1	0	1	0	0	0	1	1	1	0	1	0	1	1	1	0	0	0	0	1	1	1	1	1
25	0	1	1	1	1	0	0	1	1	1	0	0	1	0	1	1	1	1	1	0	1	0	0	2	1	2
26	0	0	1	1	0	1	1	1	1	0	0	1	0	1	1	0	1	0	0	1	1	1	0	2	1	2
27	1	0	1	0	0	1	1	1	1	1	0	0	1	(CA)	2	0	1	0	1	1	1	1	1	2	1	2
28	1	1	1	0	1	1	2	1	0	1	1	1	0	1	1	(CA)	(CA)	(CA)	(CA)	1	1	1	1	1	1	2
29	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	0	0	1	0	0	0	1	1	1	1
30	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	1	1	1	0	1
AV	0	1	1	1	0	0	1	1	1	1	1	0	1	0	1	0	1	0	1	1	1	0	0	1	1	
PK	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2		2

OXIDES OF NITROGEN
(UG/M3)

CB-TRACT
TRAILER AB23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	0	0	2	2	2	2	2	2	2	0	0	2	0	0	0	2	0	0	0	0	0	0	1	2
2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	2
3	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	2
6	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	2	2	0	0	0	2	0	0	0	2
9	2	2	2	0	0	0	2	2	2	2	0	0	2	0	0	0	2	0	0	0	0	0	0	0	1	2
10	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	2
11	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	2
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
13	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
19	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
24	2	0	0	0	0	2	0	2	0	2	0	0	0	0	2	0	2	0	2	0	2	0	0	0	1	2
25	0	0	0	0	0	0	2	0	0	0	2	0	2	2	2	0	0	4	2	2	2	2	2	0	1	4
26	2	2	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
27	0	0	0	0	0	0	0	0	0	0	0	0	0	(CA)	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	2	0	2	2	0	0	0	0	(CA)	(CA)	(CA)	(CA)	2	0	0	0	0	0	2
29	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PK	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	2	2	2	2	2	0		4

NITROGEN DIOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	0	0	2	2	2	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	2
3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	2
6	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	0	0	0	0	0	0	0	0	0	0
9	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
13	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
24	2	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
25	0	0	0	0	0	0	2	0	0	0	2	0	0	2	0	0	0	2	0	2	0	2	2	0	1	2
26	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
27	0	0	0	0	0	0	0	0	0	0	0	0	0	(CA)	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	(CA)	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PK	2	2	0	0	2	2	2	2	0	2	2	2	0	2	2	2	2	2	2	2	2	2	2	0		2

OZONE
(UG/M3)

CB-TRACT
TRAILER AB23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	45	33	39	35	51	49	47	43	43	49	65	106	106	104	100	98	98	80	88	86	69	63	65	59	68	106
2	63	57	51	51	51	57	73	84	98	100	106	120	118	120	131	135	122	118	120	104	98	92	88	88	93	135
3	74	80	78	73	74	73	76	88	104	118	120	116	112	114	110	110	108	106	108	98	84	84	84	86	95	120
4	90	84	76	73	69	65	63	67	80	86	94	92	90	90	90	102	118	118	110	106	100	86	84	80	88	118
5	90	90	80	80	82	63	63	67	63	65	73	73	76	80	80	80	82	82	82	78	76	73	73	67	76	90
6	61	61	63	63	65	59	55	57	74	78	80	82	82	82	80	80	78	73	71	65	47	39	39	45	66	82
7	39	45	43	41	37	43	37	55	65	74	74	76	78	74	73	74	74	74	71	69	65	61	61	59	61	78
8	55	57	59	59	55	55	35	37	43	61	71	71	65	71	78	84	84	92	84	82	78	76	76	73	67	92
9	71	69	69	63	65	61	65	78	88	92	86	76	84	86	84	86	100	90	86	84	84	74	71	69	78	100
10	67	67	67	63	67	65	49	63	86	88	90	88	90	88	84	76	82	88	84	74	67	71	69	67	75	90
11	65	69	69	69	65	63	65	80	80	88	92	96	98	102	108	108	108	104	94	88	82	96	100	90	87	108
12	84	80	82	74	86	94	92	98	104	98	98	88	82	84	86	86	84	80	80	63	59	47	49	49	80	104
13	59	96	84	65	63	55	67	67	69	71	76	78	74	80	78	84	80	80	80	74	53	55	49	49	70	96
14	55	53	59	59	55	53	49	61	71	80	82	84	120	88	84	86	90	90	86	65	67	73	82	76	74	120
15	74	78	76	73	71	69	73	84	94	100	98	92	86	84	82	80	78	78	73	67	67	63	63	69	78	100
16	61	67	67	63	61	63	53	45	59	80	86	88	92	92	98	92	86	84	82	76	76	67	78	80	75	98
17	82	78	74	78	82	86	67	82	102	104	100	96	86	84	88	84	88	86	84	80	80	80	80	80	85	104
18	71	71	73	74	80	74	80	92	100	98	98	98	96	92	84	84	80	80	80	78	78	80	76	76	83	100
19	69	78	73	73	73	69	63	67	71	84	90	98	96	92	96	104	108	108	110	98	88	92	96	96	87	110
20	86	86	80	88	88	78	80	90	96	102	110	100	94	96	90	88	86	80	78	73	73	74	73	69	86	110
21	65	69	67	63	63	61	65	69	73	76	76	78	78	76	78	78	80	78	76	65	61	63	65	67	70	80
22	61	67	69	67	63	61	61	61	65	65	65	67	71	74	74	76	73	71	71	63	53	59	65	67	66	76
23	63	63	69	69	63	61	57	57	63	71	78	78	78	80	80	78	74	76	76	78	71	67	57	53	69	80
24	53	59	59	49	53	53	65	76	78	78	78	80	84	84	82	80	88	84	67	67	51	69	73	69	70	88
25	57	57	59	71	76	55	47	53	67	80	86	84	82	74	84	76	102	110	102	100	82	80	71	59	76	110
26	53	59	59	47	55	73	55	57	80	90	92	92	88	92	82	82	76	90	84	82	80	82	74	59	74	92
27	55	59	59	65	55	39	63	67	65	74	80	78	76	74	(CA)	71	78	80	74	63	67	65	59	51	66	80
28	49	47	41	41	27	35	33	45	61	69	76	88	92	(CA)	74	74	59	67	57	49	55	63	73	73	59	92
29	71	76	76	76	67	59	57	49	69	86	98	98	92	98	102	106	106	102	94	82	80	92	96	98	85	106
30	82	84	82	86	82	84	84	86	94	100	104	110	122	122	110	102	100	88	78	65	65	71	73	73	89	122
AV	66	68	67	65	65	62	61	67	77	84	87	89	90	89	89	88	89	88	84	77	72	72	72	70	77	
PK	90	96	84	88	88	94	92	98	104	118	120	120	122	122	131	135	122	118	120	106	100	96	100	98		135

CARBON MONOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	70	60	60	60	60	70	70	60	70	70	70	70	60	60	60	60	60	70	70	70	70	70	70	70	64	70
2	70	70	70	70	70	70	70	70	60	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	70
3	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	70
4	70	70	70	70	60	70	70	70	70	70	70	70	70	70	70	70	60	70	70	70	70	70	70	60	68	70
5	70	70	60	70	60	70	70	70	70	70	70	70	70	70	70	70	60	70	70	70	70	70	70	70	68	70
6	70	60	70	70	60	60	70	70	70	60	70	60	60	60	60	70	70	70	70	70	70	70	70	70	65	70
7	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	60	70	70	60	60	70	60	67	70
8	60	60	60	60	60	60	70	70	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	30	30	50	50	50	50	50	50	52	70
9	50	50	50	50	50	50	50	50	50	50	30	30	50	50	60	60	60	60	60	60	60	60	60	60	50	60
10	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	70	70	60	70	60	60	70	70	70	60	70
11	60	70	60	60	60	60	70	60	60	60	60	60	60	60	60	60	60	60	60	60	60	70	70	70	60	70
12	70	70	70	70	60	60	60	70	60	60	70	60	60	60	60	60	60	60	60	60	60	60	60	60	60	70
13	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60
14	60	60	60	60	60	60	60	60	60	60	60	60	50	60	60	60	60	60	60	60	60	60	60	60	57	60
15	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	50	60	60	60	60	60	57	60
16	60	60	60	50	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60
17	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	60	60	60	60	60	60	60	57	60
18	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	50	50	60	60	50	50	50	55	60
19	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60
20	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	50	50	50	50	50	60	55	60
21	50	50	50	50	50	60	60	60	60	60	60	60	60	60	50	50	50	50	50	60	60	60	50	60	52	60
22	50	50	50	50	60	60	60	60	50	50	50	50	50	50	50	50	50	50	50	60	60	60	50	50	49	60
23	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	70	70	70	70	70	70	70	70	70	62	70
24	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	80	70	80	80	80	80	80	80	80	73	80
25	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
26	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
27	80	80	80	80	80	80	80	80	80	80	80	80	70	(CA)	50	50	50	50	50	60	50	50	50	50	65	80
28	50	50	50	50	50	50	60	50	(CA)	20	20	20	20	20	20	20	50	30	30	50	50	50	50	50	38	60
29	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	30	30	30	45	50
30	30	50	30	30	30	30	50	30	20	20	20	20	20	20	20	20	20	10	10	10	10	10	10	10	24	50
AV	61	61	60	60	59	61	62	61	60	59	59	59	58	58	57	59	57	57	58	60	59	59	59	59	59	
PK	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80		80

SULFUR DIOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	0	0	0	0	0	0	0	0	0	0	0	(CA)	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	3	3	0	3	3	3	0	0	0	0	0	3	0	3	3	1	3
8	3	3	3	0	0	0	0	3	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	3	3	3	3	0	0	3	0	1	3
9	0	3	0	3	3	3	3	0	0	3	3	0	0	0	3	0	0	0	0	0	0	3	3	0	1	3
10	0	0	0	0	3	5	3	0	0	3	0	3	0	3	5	3	3	3	3	3	3	0	3	3	2	5
11	3	0	0	3	0	0	0	0	3	3	3	3	0	5	3	3	3	3	0	3	0	0	0	0	1	5
12	0	0	0	0	0	0	3	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	3	0	0	3
13	0	0	0	0	0	0	0	0	0	0	3	3	3	3	0	0	3	3	0	0	0	0	3	0	1	3
14	0	3	0	0	0	0	0	0	0	3	3	3	(MT)	(MT)	(MT)	8	8	3	3	0	3	0	0	3	2	8
15	0	0	0	0	0	0	0	3	0	0	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	3
16	3	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
17	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3	3	3	0	0	0	0	0	1	3
18	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	3	0	3	0	3	0	0	0	3	1	3
19	0	0	0	3	3	3	3	0	0	0	0	0	0	0	3	3	0	0	3	0	0	0	0	0	1	3
20	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
25	0	0	0	0	0	0	0	0	3	3	3	3	3	0	3	3	0	3	3	0	3	0	3	3	1	3
26	0	3	3	3	0	3	0	3	0	0	3	3	3	3	3	0	0	0	0	0	3	0	0	0	1	3
27	0	3	3	3	0	0	0	0	0	0	0	0	0	(CA)	5	0	0	3	3	3	3	0	0	0	1	5
28	0	3	0	0	0	3	0	3	5	(CA)	(CA)	(CA)	(CA)	5	5	5	5	5	8	5	5	5	5	3	4	8
29	5	5	8	5	5	3	5	5	3	3	3	3	3	3	3	3	3	3	0	0	3	5	5	3	3	8
30	3	3	3	3	5	0	3	3	0	3	3	3	5	3	3	0	0	3	3	3	3	3	0	3	2	5
AV	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
PK	5	5	8	5	5	5	5	5	5	3	3	3	5	5	5	8	8	5	8	5	5	5	5	3		8

HYDROGEN SULFIDE
(UG/M3)

CB-TRACT
TRAILER AB23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	0	0	0	0	0	1	1	1	0	1	1	(CA)	1	1	1	1	0	1	0	0	0	0	1	1
2	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	1	4	6	3	1	1	1	6
3	0	0	1	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1
5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	1
7	0	0	0	0	0	0	0	1	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(CA)	(CA)	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	(CA)	(CA)	8	7	7	7	6	6	6	6	6	6	3	8
10	6	7	7	6	6	6	6	7	7	7	7	8	7	8	8	7	7	7	8	7	7	7	7	7	7	8
11	7	6	7	6	7	7	6	7	7	7	7	7	8	8	8	7	7	7	7	7	7	7	7	7	7	8
12	7	7	8	7	7	7	7	7	7	6	7	7	7	7	7	7	7	7	7	7	8	7	7	7	7	8
13	7	7	7	7	8	7	7	7	8	6	4	6	6	4	6	6	6	6	6	4	6	4	4	4	6	8
14	3	4	3	4	3	4	3	4	4	4	6	4	6	7	6	4	4	4	4	6	6	4	3	3	4	7
15	1	3	3	3	4	4	4	3	4	3	3	4	4	4	4	4	6	4	4	3	4	3	3	3	4	6
16	1	3	3	3	1	3	3	1	1	3	3	3	3	4	3	3	4	3	3	3	3	3	3	1	3	4
17	0	1	1	1	1	3	1	3	4	3	4	4	4	4	3	4	3	3	3	3	3	3	3	3	3	4
18	1	1	1	1	1	0	1	1	1	1	3	1	3	4	3	3	4	3	3	3	3	3	1	1	2	4
19	1	1	1	1	1	1	0	0	1	1	3	3	3	3	3	3	1	3	3	3	3	1	1	1	2	3
20	0	0	1	1	1	1	1	1	3	3	4	4	6	6	6	4	6	6	4	6	4	4	4	4	3	6
21	4	4	4	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	3	3	3	3	3	4
22	1	3	3	3	4	3	3	3	4	3	4	4	6	6	4	3	4	3	3	4	3	3	3	1	3	6
23	1	3	3	3	3	3	3	3	3	4	3	4	4	4	4	4	3	3	3	3	1	3	1	1	3	4
24	1	1	0	1	1	1	1	1	1	1	1	3	1	3	3	1	1	1	0	0	0	0	0	0	1	3
25	0	0	0	0	0	0	3	3	3	4	3	4	4	4	4	4	4	3	4	3	3	3	3	3	3	4
26	1	1	1	1	1	3	3	3	3	3	3	1	3	4	4	4	3	3	3	3	1	1	3	1	2	4
27	3	1	3	3	3	3	3	3	3	1	1	1	1	(CA)	1	3	3	3	1	1	1	1	1	1	2	3
28	1	0	0	0	0	0	1	1	1	1	4	3	3	3	3	1	3	3	3	1	1	0	0	0	1	4
29	1	0	0	0	0	1	0	0	0	0	0	0	1	0	1	1	0	1	1	1	0	0	1	0	1	1
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AV	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	
PK	7	7	8	7	8	7	7	7	8	7	7	8	8	8	8	7	7	7	8	7	8	7	7	7		8

PARTICULATE DATA
UG/M3

C-B TRACT
JUNE 1983
OCCIDENTAL OIL SHALE, INC.

			STATION		
DAY	AB20	AB23	AB26	AD42	AD56
3	( )	(IM)	( )	( )	( )
7	( )	9.9	( )	( )	( )
11	( )	6.7	( )	( )	( )
15	( )	12.3	( )	( )	( )
19	( )	24.2	( )	( )	( )
23	( )	27.2	( )	( )	( )
27	( )	13.4	( )	( )	( )
AVE	( )	15.6	( )	( )	( )
GM	( )	13.9	( )	( )	( )
PEAK	( )	27.2	( )	( )	( )

WIND SPEED @ 10M
METERS/SEC

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	1	1	2	1	1	1	2	1	1	1	2	7	8	8	5	5	4	5	4	2	1	2	2	2	3	8
2	1	0	0	2	1	1	3	7	5	6	5	6	5	3	6	1	0	5	4	3	2	1	1	1	3	7
3	1	1	1	0	1	1	0	0	1	1	2	4	3	1	1	2	1	1	1	2	3	2	0	0	1	4
4	1	1	0	2	0	1	(CM)	2	1	3	2	5	4	3	3	4	5	4	3	2	1	1	2	0	2	5
5	1	0	2	1	0	0	1	2	3	4	4	4	4	4	4	4	4	4	4	2	1	1	1	1	2	4
6	1	2	0	0	0	0	0	1	1	1	1	1	2	3	3	5	0	5	2	1	1	1	1	0	2	5
7	0	0	1	1	(CM)	0	0	0	1	1	1	1	1	2	2	1	2	1	2	2	2	3	1	1	1	3
8	0	0	0	1	1	1	(CM)	1	1	1	2	3	1	4	4	1	2	4	3	4	3	2	2	2	2	4
9	1	2	2	2	2	2	2	0	3	4	1	3	1	4	2	1	5	2	4	5	4	2	2	2	2	5
10	2	2	1	1	1	1	0	1	0	1	0	3	2	4	4	2	2	2	3	3	3	1	0	1	2	4
11	2	2	2	2	2	2	2	5	6	7	5	6	7	8	7	8	8	6	4	4	5	6	3	2	5	8
12	3	1	1	3	3	3	2	3	4	1	3	3	2	2	1	0	2	3	1	1	2	0	1	3	2	4
13	2	2	1	1	2	1	0	1	3	2	2	3	5	3	6	4	2	3	2	1	1	1	1	1	2	6
14	1	1	0	0	0	1	0	0	1	1	1	1	1	1	1	1	1	2	2	2	3	0	(CM)	0	1	3
15	1	2	2	2	2	2	2	0	4	4	3	3	3	4	4	4	4	2	1	2	1	2	3	2	2	4
16	1	1	1	1	2	2	1	1	1	3	5	5	5	4	5	5	4	4	2	1	1	2	1	2	3	5
17	1	2	2	0	0	0	1	1	1	1	1	1	2	2	3	4	4	2	4	4	5	5	4	4	2	5
18	1	3	2	1	2	1	2	5	7	7	7	7	6	7	5	6	6	6	5	4	4	5	5	4	5	7
19	3	3	3	2	1	0	0	1	1	5	5	6	7	7	7	7	7	7	4	4	3	1	2	0	4	7
20	1	1	2	1	1	0	1	4	6	5	6	6	6	7	7	7	7	6	5	4	5	5	4	4	4	7
21	4	4	4	4	4	4	4	5	6	6	7	7	6	7	7	7	6	5	4	2	3	1	1	1	5	7
22	1	2	3	2	1	2	5	5	6	5	4	4	4	4	4	5	4	4	3	2	3	1	2	2	3	6
23	1	3	4	4	4	3	1	2	1	2	6	5	4	3	5	3	4	4	3	4	2	4	1	1	3	6
24	1	1	1	2	2	1	1	2	2	3	4	2	2	4	1	3	3	1	0	2	2	3	2	3	2	4
25	3	2	0	1	0	1	0	1	2	3	4	4	2	2	4	4	4	4	4	1	1	1	1	1	2	4
26	1	0	(CM)	1	1	0	0	1	1	1	1	2	3	2	3	3	2	2	1	0	1	1	0	0	1	3
27	0	1	1	1	0	0	1	1	0	2	0	1	1	0	1	1	2	2	3	3	2	2	1	2	1	3
28	2	0	1	2	0	2	1	1	1	2	2	5	6	6	6	3	4	3	1	2	2	1	1	1	2	6
29	1	1	0	0	1	1	1	1	1	1	4	4	4	4	4	5	4	4	3	3	3	3	2	4	3	5
30	4	4	4	4	4	4	4	4	6	7	6	5	6	6	5	4	6	4	3	3	3	2	1	0	4	7
AV	1	2	2	2	2	1	1	2	3	3	3	4	4	4	4	4	4	4	3	3	2	2	2	2	3	
PK	4	4	4	4	4	4	5	7	7	7	7	7	8	8	7	8	8	7	5	5	5	6	5	4		8

WIND SPEED @ 30M
METERS/SEC

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	2	3	2	1	1	2	1	2	1	2	9	11	12	8	7	5	7	5	4	1	3	3	3	4	12
2	3	1	0	2	2	2	4	9	8	9	8	8	7	4	8	2	0	7	6	5	4	2	2	1	4	9
3	1	0	1	0	1	1	0	1	1	2	2	5	4	1	2	3	2	1	1	4	5	3	1	1	2	5
4	0	2	1	1	1	1	0	2	2	4	3	6	6	4	4	6	8	5	4	3	1	0	1	1	3	8
5	1	0	2	1	0	1	2	3	4	4	4	5	4	5	5	5	4	5	5	3	2	2	2	1	3	5
6	1	2	0	1	1	1	0	1	2	2	1	2	3	4	4	6	1	7	3	2	2	1	1	0	2	7
7	0	(CM)	1	0	1	0	0	1	1	1	2	1	2	3	3	2	3	2	2	3	3	5	4	2	2	5
8	1	1	(CM)	0	1	1	1	1	1	1	3	3	2	6	5	1	2	6	4	6	5	3	3	3	3	6
9	2	4	3	3	3	1	2	0	4	5	1	4	2	6	2	2	7	2	5	7	5	3	3	3	3	7
10	3	2	2	1	1	1	0	1	1	1	0	4	3	5	6	4	3	3	5	4	6	3	1	1	3	6
11	2	2	2	2	3	3	2	8	8	9	7	8	9	12	10	10	11	8	5	5	8	9	4	3	6	12
12	4	2	2	4	5	4	3	4	6	2	4	4	3	3	1	0	2	3	2	2	3	0	3	4	3	6
13	3	4	2	2	2	1	0	2	3	3	2	4	7	4	9	5	3	4	3	2	0	2	0	1	3	9
14	1	1	1	0	(CM)	1	(CM)	0	1	1	2	2	2	2	1	1	1	3	3	3	5	0	0	1	2	5
15	0	1	3	3	3	3	2	1	5	4	4	3	4	5	5	5	6	3	2	4	0	4	4	4	3	6
16	1	1	2	2	3	2	2	1	1	4	7	7	8	6	8	7	7	6	3	2	1	4	2	2	4	8
17	1	1	2	1	0	0	1	1	1	1	1	2	3	3	4	5	6	3	6	6	8	9	7	7	3	9
18	4	2	2	1	4	0	4	8	9	10	9	9	8	9	7	8	9	9	8	6	8	8	8	8	7	10
19	4	4	4	3	2	0	1	2	1	7	7	8	9	9	9	9	9	9	7	6	6	3	2	0	5	9
20	1	1	3	1	2	1	0	7	8	7	8	8	9	9	9	9	9	9	8	5	7	7	5	7	6	9
21	6	7	7	7	7	7	6	8	8	8	9	9	8	9	9	9	8	7	5	4	5	2	1	1	7	9
22	2	3	6	4	3	5	7	7	8	7	5	6	6	6	6	6	5	4	4	3	4	2	3	4	5	8
23	3	6	7	7	7	4	2	2	2	2	8	7	4	4	8	4	6	6	4	5	3	5	2	1	5	8
24	2	2	2	4	3	2	1	2	2	4	4	2	3	6	2	4	4	1	1	3	4	5	3	4	3	6
25	5	4	1	2	0	1	1	1	2	4	5	4	3	4	6	6	5	7	6	2	2	2	2	1	3	7
26	1	(CM)	0	1	1	0	0	1	1	2	1	2	3	2	4	4	4	3	2	0	1	1	0	1	2	4
27	1	1	2	2	0	0	1	1	0	3	1	2	1	1	1	2	2	3	4	4	3	3	2	3	2	4
28	3	0	2	3	1	3	2	2	2	2	3	7	8	8	8	4	5	4	1	2	3	2	1	1	3	8
29	1	0	1	(CM)	1	1	1	1	1	2	6	6	6	6	7	7	6	5	4	6	6	6	4	7	4	7
30	6	6	6	8	7	8	5	6	8	9	9	8	8	8	7	6	8	5	4	5	6	4	4	3	6	9
AV	2	2	2	2	2	2	2	3	3	4	4	5	5	5	6	5	5	5	4	4	4	3	3	3	4	
PK	6	7	7	8	7	8	7	9	9	10	9	9	11	12	10	10	11	9	8	7	8	9	8	8		12

WIND SPEED @ 60M
METERS/SEC

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	2	4	3	1	2	2	1	2	1	3	10	12	13	8	8	5	8	5	4	1	3	2	3	4	13
2	3	1	1	2	2	2	5	10	8	9	8	8	8	4	10	2	0	8	8	6	5	3	2	1	5	10
3	0	0	1	0	1	1	0	0	1	2	3	6	4	1	2	3	2	1	1	4	5	4	1	1	2	6
4	0	2	2	0	1	1	1	3	2	4	3	7	6	4	4	7	8	6	4	4	1	1	0	1	3	8
5	2	0	1	2	2	2	3	3	4	5	5	5	5	6	5	5	5	6	6	4	3	3	2	2	4	6
6	2	2	1	1	0	1	1	1	2	2	2	2	3	4	4	7	1	8	4	2	3	2	1	1	2	8
7	0	0	(CM)	0	0	(CM)	0	1	1	2	2	2	2	3	4	2	3	2	3	3	4	5	4	3	2	5
8	1	2	0	(CM)	2	2	2	0	1	2	4	4	2	6	6	1	3	7	5	8	7	4	4	3	3	8
9	3	3	2	2	2	2	2	(CM)	4	5	1	5	2	8	2	2	8	3	7	8	7	3	3	3	4	8
10	3	2	2	1	1	1	(CM)	1	1	1	1	4	3	5	7	4	3	4	5	5	7	5	4	2	3	7
11	3	2	1	2	2	2	3	8	9	10	8	9	10	13	11	11	12	9	6	6	9	9	5	4	7	13
12	5	3	3	5	6	5	4	5	7	3	4	4	3	3	1	1	3	4	2	2	4	0	4	4	4	7
13	4	5	2	3	3	2	0	2	4	3	3	4	8	4	9	5	3	4	4	2	(CM)	2	1	2	3	9
14	1	0	1	1	1	1	0	1	1	2	2	2	2	2	1	1	2	3	3	4	6	2	1	2	2	6
15	2	1	1	1	1	2	2	2	5	5	4	4	4	5	6	5	6	4	2	4	1	4	4	4	3	6
16	1	1	2	1	2	2	3	2	2	4	7	7	8	7	8	8	7	7	3	3	2	5	2	2	4	8
17	1	2	2	2	0	0	1	1	2	1	2	2	3	3	4	6	6	3	7	8	10	11	9	9	4	11
18	7	4	1	2	3	3	5	9	11	11	10	10	9	10	8	8	10	9	9	8	10	11	11	10	8	11
19	5	5	4	3	2	1	1	2	0	8	8	9	10	10	9	10	10	10	8	8	7	4	3	1	6	10
20	1	1	3	2	3	2	1	8	8	8	8	8	9	10	10	10	10	10	8	6	8	7	6	8	7	10
21	7	9	9	8	8	8	7	8	9	8	9	10	9	10	10	10	9	8	6	4	5	3	3	4	8	10
22	4	5	7	7	4	8	8	8	8	7	5	6	7	6	6	7	5	5	4	3	4	2	4	6	6	8
23	5	8	8	8	8	6	3	2	2	3	8	8	5	4	8	4	7	7	4	6	4	7	3	2	5	8
24	3	2	3	4	4	3	1	2	3	4	5	3	3	8	2	5	5	1	0	3	5	6	3	5	3	8
25	6	4	2	2	0	2	2	1	2	4	5	5	3	4	6	6	5	8	6	2	2	2	1	2	4	8
26	1	1	0	1	1	0	1	0	0	2	2	3	4	2	4	4	5	4	2	0	1	1	1	1	2	5
27	1	1	2	2	1	0	2	2	0	3	1	2	2	1	1	2	3	3	5	5	4	4	2	3	2	5
28	2	0	2	3	1	3	2	2	2	2	3	7	9	8	8	4	6	5	1	2	3	3	1	0	4	9
29	1	1	0	2	1	1	2	2	2	2	6	7	6	7	7	7	6	5	5	7	7	8	7	9	5	9
30	9	8	8	10	10	9	7	7	9	10	9	8	9	9	7	6	8	6	5	6	8	6	7	5	8	10
AV	3	3	3	3	3	3	2	3	4	4	5	6	6	6	6	5	6	6	5	5	5	4	3	3	4	
PK	9	9	9	10	10	9	8	10	11	11	10	10	12	13	11	11	12	10	9	8	10	11	11	10		13

WIND DIRECTION @ 10M
DEGREES

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	233	238	251	254	176	149	93	17	325	344	302	223	242	229	225	201	263	24	44	31	255	245	227	233	250
2	233	141	202	221	209	135	170	169	207	242	231	200	281	283	201	132	56	249	233	196	158	126	148	182	195
3	103	133	236	103	193	215	23	8	3	320	317	168	173	317	358	71	120	8	336	215	206	214	253	307	275
4	217	125	185	220	7	208	(CM)	320	315	316	349	306	327	345	310	329	306	301	339	30	152	190	216	270	296
5	231	141	223	246	90	256	279	307	319	343	336	331	352	342	349	350	351	341	341	358	47	112	140	307	330
6	204	217	169	261	82	207	23	339	315	338	323	325	315	323	336	359	309	226	178	103	157	205	159	197	269
7	135	235	210	219	(CM)	210	308	261	315	327	305	287	327	309	313	307	340	358	355	47	131	143	143	197	287
8	243	284	171	212	204	210	(CM)	312	323	71	245	344	12	339	66	4	313	274	164	151	142	137	125	115	226
9	105	118	115	104	97	79	81	24	205	209	301	67	90	212	102	117	270	217	196	181	191	90	115	92	126
10	123	148	222	114	150	163	45	107	129	180	128	243	209	209	220	233	200	227	212	198	198	191	329	90	178
11	89	82	82	89	91	82	82	192	195	205	204	207	195	194	207	207	215	220	262	253	304	313	339	70	183
12	124	202	240	150	231	168	189	207	175	158	149	310	313	302	250	122	105	159	143	82	139	53	114	164	165
13	240	212	60	118	185	241	230	315	341	4	4	323	328	341	294	262	305	307	313	344	199	199	65	119	299
14	163	231	19	194	234	199	45	19	22	11	5	350	347	259	283	304	344	284	226	202	204	0	(CM)	135	300
15	87	102	104	114	111	114	86	180	214	217	215	210	206	198	208	211	212	230	284	318	194	161	167	174	179
16	191	137	127	124	106	109	100	0	125	211	220	225	253	248	246	235	245	255	263	270	294	268	251	229	220
17	205	224	229	167	264	135	109	53	81	352	34	13	289	300	233	284	289	271	209	189	186	194	184	176	221
18	139	66	80	82	144	55	194	208	201	211	213	205	212	207	215	213	219	223	216	201	196	191	193	204	191
19	287	249	233	216	208	102	90	67	349	204	212	209	210	207	205	229	237	230	227	207	212	251	246	153	217
20	215	219	228	142	158	292	71	193	193	201	217	208	210	207	212	208	205	204	199	181	172	168	158	156	194
21	161	171	166	155	168	163	141	167	174	201	182	186	198	199	212	202	205	208	208	202	205	225	218	223	189
22	228	214	199	197	191	190	183	189	194	191	197	180	210	217	221	198	225	231	246	221	209	176	150	158	201
23	197	150	146	156	161	156	106	87	151	195	203	196	192	229	232	201	108	115	135	205	142	149	148	52	161
24	129	176	122	110	111	104	90	225	220	247	231	258	314	88	8	317	336	73	90	151	153	196	136	156	145
25	141	129	180	168	45	94	86	302	299	303	309	328	338	316	316	317	295	155	218	50	145	173	191	135	239
26	228	175	(CM)	205	204	53	180	75	23	323	312	326	336	3	33	185	208	312	255	37	74	149	117	236	274
27	209	216	221	256	180	219	293	215	5	1	61	48	45	141	147	131	89	133	146	159	133	125	90	112	142
28	124	122	175	223	95	159	103	86	55	355	309	301	297	290	305	308	194	217	81	212	233	261	215	212	217
29	199	201	349	261	196	145	201	83	77	221	212	212	214	230	238	229	235	223	199	189	193	192	199	193	206
30	201	193	196	199	195	188	191	192	197	202	224	204	205	214	222	210	226	220	215	197	198	194	188	200	203
PV	181	176	183	177	161	160	112	134	259	260	259	256	267	259	251	236	252	240	221	188	181	182	170	172	216

WIND DIRECTION @ 30M
DEGREES

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	284	264	259	268	180	152	94	20	323	345	293	222	240	227	223	199	262	23	43	31	297	259	240	242	265
2	245	168	175	231	226	126	173	166	205	240	230	199	279	281	201	132	60	248	232	198	159	135	145	173	196
3	104	139	267	104	138	205	341	7	354	318	315	164	173	311	350	71	118	9	329	218	202	204	237	8	303
4	229	109	101	229	318	206	243	318	312	314	345	304	325	343	308	325	302	299	334	24	106	135	223	277	303
5	263	210	243	268	241	272	289	310	319	339	334	329	349	339	346	348	347	338	338	356	36	74	109	339	323
6	240	227	204	287	83	121	85	330	314	333	320	327	310	321	332	358	305	226	178	113	148	205	114	236	281
7	117	(CM)	243	238	10	120	305	256	309	323	302	287	324	310	311	307	336	359	352	43	114	127	123	147	321
8	199	280	(CM)	194	175	192	101	309	331	73	241	340	3	336	65	0	310	270	164	148	140	138	129	109	168
9	116	108	113	112	108	99	84	16	204	208	307	66	88	215	98	118	270	220	196	181	186	96	115	99	129
10	119	153	218	98	131	146	11	111	132	178	135	242	209	207	218	229	201	226	211	194	193	190	192	141	178
11	148	107	103	108	108	101	101	191	192	205	203	204	195	191	206	206	213	218	260	250	303	312	336	65	184
12	120	202	240	150	228	170	191	209	176	157	148	312	312	298	253	142	104	158	147	94	136	149	97	156	168
13	239	209	64	107	163	241	233	316	339	4	4	321	327	337	292	260	304	305	313	338	189	176	109	120	296
14	143	249	34	141	(CM)	197	(CM)	12	29	14	6	346	343	258	278	294	337	281	222	197	194	194	11	202	288
15	163	110	114	114	113	127	101	185	212	215	216	211	206	199	207	208	210	230	280	318	246	140	149	152	182
16	201	133	136	133	112	111	110	36	116	209	219	224	250	246	244	234	244	253	260	274	311	284	307	259	222
17	237	249	250	215	307	81	118	59	80	354	31	12	287	298	231	282	288	269	206	187	183	186	178	174	239
18	160	101	83	108	138	132	198	207	201	208	210	204	210	207	214	212	218	222	214	199	194	191	192	205	189
19	288	254	245	232	224	112	98	73	332	203	210	206	209	204	205	228	235	228	225	208	212	266	265	36	224
20	241	249	246	180	138	251	86	191	190	199	214	207	209	204	209	205	203	202	199	180	173	166	152	155	196
21	152	165	159	151	161	155	139	166	172	199	180	184	197	198	211	201	204	205	205	198	193	195	193	184	182
22	191	190	185	184	188	187	181	188	192	190	193	178	209	216	220	197	222	231	245	228	216	187	136	146	196
23	160	147	144	153	157	154	117	94	149	198	202	195	193	229	231	202	106	112	133	203	150	145	142	62	158
24	128	185	130	114	114	119	98	221	219	247	231	257	311	87	9	315	331	73	79	143	153	196	140	152	149
25	140	133	151	162	65	79	69	301	297	300	309	327	338	319	314	315	293	149	209	41	136	159	187	145	202
26	251	(CM)	32	193	211	80	173	79	20	321	307	324	336	359	29	180	203	308	255	22	65	158	170	246	307
27	223	222	225	262	238	194	291	214	0	359	53	55	40	137	145	129	87	134	145	159	143	133	109	106	147
28	114	125	163	236	37	145	127	87	57	354	305	298	294	286	303	305	194	213	88	220	256	295	223	235	240
29	207	158	11	(CM)	168	143	194	120	86	221	212	210	212	229	236	228	235	218	199	186	185	190	189	188	195
30	191	187	191	195	190	185	188	191	195	201	221	204	202	211	220	209	224	219	215	195	197	194	191	206	201
PV	186	178	176	175	158	149	131	165	252	258	257	254	266	257	250	233	250	238	220	190	178	177	163	166	215

WIND DIRECTION ■ 60M
DEGREES

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	309	285	271	289	188	158	97	21	324	349	291	222	240	226	222	199	258	24	45	35	317	272	251	262	277
2	260	174	144	233	235	131	179	167	204	239	230	197	280	281	201	138	59	251	235	204	166	147	155	176	198
3	235	238	273	215	117	180	270	0	356	319	319	165	176	309	348	71	121	14	321	225	213	212	213	19	261
4	258	113	87	212	292	239	261	317	314	317	342	305	328	342	310	325	305	302	333	21	66	58	320	278	317
5	286	274	274	288	267	288	306	318	323	341	337	332	350	341	347	348	346	339	339	359	32	45	92	1	331
6	291	238	243	268	270	93	109	317	319	336	323	333	313	321	331	359	291	227	184	129	147	182	93	215	283
7	215	165	(CM)	259	343	(CM)	276	261	299	324	307	290	331	314	315	311	339	0	356	41	102	119	118	140	315
8	161	272	289	(CM)	146	168	124	16	14	80	238	338	350	337	68	354	311	270	170	149	143	141	136	128	121
9	138	121	135	142	164	193	94	(CM)	205	208	301	65	77	227	89	123	271	223	196	182	184	111	127	103	153
10	111	154	221	65	106	134	(CM)	102	131	170	144	244	210	207	217	230	199	225	210	197	201	190	187	181	180
11	177	167	190	186	153	164	154	189	191	202	201	203	194	190	203	205	211	217	258	248	300	311	336	60	201
12	120	198	242	159	227	178	197	211	181	161	153	312	316	297	253	196	107	163	153	109	141	190	86	148	178
13	242	211	64	100	146	250	251	325	340	6	3	322	329	337	293	262	309	307	315	341	(CM)	162	180	132	303
14	131	264	39	82	85	90	71	7	37	16	11	343	342	263	283	296	336	281	226	206	197	195	210	211	322
15	202	182	156	111	99	126	111	194	211	214	217	208	207	201	205	205	210	228	277	319	317	126	135	140	187
16	180	163	140	140	114	101	137	43	107	206	219	224	249	246	243	234	246	253	260	277	316	299	341	291	222
17	275	270	271	240	257	168	124	72	82	356	28	9	287	298	231	281	288	266	205	189	184	182	175	173	240
18	167	160	125	153	149	202	202	206	200	206	208	202	209	206	212	210	217	221	213	200	198	193	195	208	195
19	296	267	261	261	245	216	170	82	312	201	208	204	207	203	204	227	235	227	225	212	219	278	273	358	234
20	285	258	258	221	130	242	184	191	189	197	212	205	208	203	207	202	201	200	197	184	180	170	158	161	201
21	153	163	156	157	164	155	144	167	173	197	179	184	195	197	209	199	202	202	203	202	195	195	195	188	182
22	194	191	185	180	180	183	181	188	191	188	193	178	208	215	218	197	220	231	245	232	232	215	135	143	197
23	153	147	145	155	157	158	136	109	153	197	200	193	194	227	230	205	109	114	136	204	160	148	149	89	161
24	136	197	149	124	120	141	118	219	215	246	230	255	312	86	13	316	331	62	50	140	157	194	151	152	159
25	137	131	145	162	52	69	51	312	300	301	311	329	339	325	314	316	295	146	204	48	125	146	186	133	34
26	243	302	24	79	90	90	90	90	8	322	305	329	337	356	28	179	202	309	276	347	31	251	228	258	338
27	239	237	239	268	263	246	294	219	351	357	52	59	36	131	148	129	86	137	149	163	157	145	140	122	162
28	120	203	153	243	346	135	145	104	62	352	304	300	295	289	305	306	196	212	109	227	280	319	352	302	275
29	236	199	29	98	125	147	179	168	107	222	211	209	210	228	234	229	235	215	201	191	188	194	188	191	194
30	190	190	193	199	193	188	188	191	193	200	221	203	201	209	219	208	223	220	216	204	206	204	201	212	203
PV	203	203	189	183	162	164	156	172	240	256	255	254	268	258	250	234	249	238	222	199	184	183	169	168	221

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
10 METER LEVEL

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	233	238	251	254	176	149	93	17	325	344	302	223	242	229	225	201	263	24	44	31	255	245	227	233	241	1.5
2	233	141	202	221	209	135	170	169	207	242	231	200	281	283	201	132	56	249	233	196	158	126	148	182	212	2.3
3	103	133	236	103	193	215	23	8	3	320	317	168	173	317	358	71	120	8	336	215	206	214	253	307	197	0.3
4	217	125	185	220	7	208	***	320	315	316	349	306	327	345	310	329	306	301	339	30	152	190	216	270	312	1.5
5	231	141	223	246	90	256	279	307	319	343	336	331	352	342	349	350	351	341	341	358	47	112	140	307	337	1.8
6	204	217	169	261	82	207	23	339	315	338	323	325	315	323	336	359	309	226	178	103	157	205	159	197	289	0.5
7	135	235	210	219	***	210	308	261	315	327	305	287	327	309	313	307	340	358	355	47	131	143	143	197	315	0.4
8	243	284	171	212	204	210	***	312	323	71	245	344	12	339	66	4	313	274	164	151	142	137	125	115	182	0.1
9	105	118	115	104	97	79	81	24	205	209	301	67	90	212	102	117	270	217	196	181	191	90	115	92	154	1.2
10	123	148	222	114	150	163	45	107	129	180	128	243	209	209	220	233	200	227	212	198	198	191	329	90	198	1.3
11	89	82	82	89	91	82	82	192	195	205	204	207	195	194	207	207	215	220	262	253	304	313	339	70	210	2.7
12	124	202	240	150	231	168	189	207	175	158	149	310	313	302	250	122	105	159	143	82	139	53	114	164	172	1.2
13	240	212	60	118	185	241	230	315	341	4	4	323	328	341	294	262	305	307	313	344	199	199	65	119	307	1.2
14	163	231	19	194	234	199	45	19	22	11	5	350	347	259	283	304	344	284	226	202	204	0	***	135	279	0.4
15	87	102	104	114	111	114	86	180	214	217	215	210	206	198	208	211	212	230	284	318	194	161	167	174	190	1.6
16	191	137	127	124	106	109	100	0	125	211	220	225	253	248	246	235	245	255	263	270	294	268	251	229	233	1.8
17	205	224	229	167	264	135	109	53	81	352	34	13	289	300	233	284	289	271	209	189	186	194	184	176	220	1.3
18	139	66	80	82	144	55	194	208	201	211	213	205	212	207	215	213	219	223	216	201	196	191	193	204	203	4.0
19	287	249	233	216	208	102	90	67	349	204	212	209	210	207	205	229	237	230	227	207	212	251	246	153	221	3.2
20	215	219	228	142	158	292	71	193	193	201	217	208	210	207	212	208	205	204	199	181	172	168	158	156	197	3.9
21	161	171	166	155	168	163	141	167	174	201	182	186	198	199	212	202	205	208	208	202	205	225	218	223	188	4.4
22	228	214	199	197	191	190	183	189	194	191	197	180	210	217	221	198	225	231	246	221	209	176	150	158	201	3.1
23	197	150	146	156	161	156	106	87	151	195	203	196	192	229	232	201	108	115	135	205	142	149	148	52	167	2.4
24	129	176	122	110	111	104	90	225	220	247	231	258	314	88	8	317	336	73	90	151	153	196	136	156	165	0.6
25	141	129	180	168	45	94	86	302	299	303	309	328	338	316	316	317	295	155	218	50	145	173	191	135	290	0.6
26	228	175	***	205	204	53	180	75	23	323	312	326	336	3	33	185	208	312	255	37	74	149	117	236	314	0.2
27	209	216	221	256	180	219	293	215	5	1	61	48	45	141	147	131	89	133	146	159	133	125	90	112	130	0.6
28	124	122	175	223	95	159	103	86	55	355	309	301	297	290	305	308	194	217	81	212	233	261	215	212	270	1.1
29	199	201	349	261	196	145	201	83	77	221	212	212	214	230	238	229	235	223	199	189	193	192	199	193	211	2.3
30	201	193	196	199	195	188	191	192	197	202	224	204	205	214	222	210	226	220	215	197	198	194	188	200	205	4.0
VD	175	174	179	168	164	154	141	189	205	227	229	229	243	237	240	234	240	235	219	192	188	188	174	169	211	
VV	0.9	1.0	1.0	1.1	1.1	1.0	0.8	1.1	1.4	1.7	2.0	2.1	2.2	2.3	2.4	2.0	2.1	2.0	1.6	1.3	1.8	1.3	1.1	1.1		1.3

TOTAL NUMBER OF OBSERVATIONS = 715

NOTE: **** = MISSING DATA

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
30 METER LEVEL

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	284	264	259	268	180	152	94	20	323	345	293	222	240	227	223	199	262	23	43	31	297	259	240	242	245	2.0
2	245	168	175	231	226	126	173	166	205	240	230	199	279	281	201	132	60	248	232	198	159	135	145	173	211	3.4
3	104	139	267	104	138	205	341	7	354	318	315	164	173	311	350	71	118	9	329	218	202	204	237	8	195	0.5
4	229	109	101	229	318	206	243	318	312	314	345	304	325	343	308	325	302	299	334	24	106	135	223	277	316	2.1
5	263	210	243	268	241	272	289	310	319	339	334	329	349	339	346	348	347	338	338	356	36	74	109	339	336	2.5
6	240	227	204	287	83	121	85	330	314	333	320	327	310	321	332	358	305	226	178	113	148	205	114	236	293	0.7
7	117	***	243	238	10	120	305	256	309	323	302	287	324	310	311	307	336	359	352	43	114	127	123	147	348	0.5
8	199	280	***	194	175	192	101	309	331	73	241	340	3	336	65	0	310	270	164	148	140	138	129	109	143	0.4
9	116	108	113	112	108	99	84	16	204	208	307	66	88	215	98	118	270	220	196	181	186	96	115	99	157	1.7
10	119	153	218	98	131	146	11	111	132	178	135	242	209	207	218	229	201	226	211	194	193	190	192	141	196	2.1
11	148	107	103	108	108	101	101	191	192	205	203	204	195	191	206	206	213	218	260	250	303	312	336	65	209	4.0
12	120	202	240	150	228	170	191	209	176	157	148	312	312	298	253	142	104	158	147	94	136	149	97	156	171	1.7
13	239	209	64	107	163	241	233	316	339	4	4	321	327	337	292	260	304	305	313	338	189	176	109	120	303	1.6
14	143	249	34	141	***	197	***	12	29	14	6	346	343	258	278	294	337	281	222	197	194	194	11	202	254	0.5
15	163	110	114	114	113	127	101	185	212	215	216	211	206	199	207	208	210	230	280	318	246	140	149	152	188	2.2
16	201	133	136	133	112	111	110	36	116	209	219	224	250	246	244	234	244	253	260	274	311	284	307	259	235	2.5
17	237	249	250	215	307	81	118	59	80	354	31	12	287	298	231	282	288	269	206	187	183	186	178	174	215	1.9
18	160	101	83	108	138	132	198	207	201	208	210	204	210	207	214	212	218	222	214	199	194	191	192	205	202	6.1
19	288	254	245	232	224	112	98	73	332	203	210	206	209	204	205	228	235	228	225	208	212	266	265	36	222	4.5
20	241	249	246	180	138	251	86	191	190	199	214	207	209	204	209	205	203	202	199	180	173	166	152	155	196	5.4
21	152	165	159	151	161	155	139	166	172	199	180	184	197	198	211	201	204	205	205	198	193	195	193	184	183	6.2
22	191	190	185	184	188	187	181	188	192	190	193	178	209	216	220	197	222	231	245	228	216	187	136	146	197	4.5
23	160	147	144	153	157	154	117	94	149	198	202	195	193	229	231	202	106	112	133	203	150	145	142	62	163	3.6
24	128	185	130	114	114	119	98	221	219	247	231	257	311	87	9	315	331	73	79	143	153	196	140	152	161	1.0
25	140	133	151	162	65	79	69	301	297	300	309	327	338	319	314	315	293	149	209	41	136	159	187	145	281	0.6
26	251	***	32	193	211	80	173	79	20	321	307	324	336	359	29	180	203	308	255	22	65	158	170	246	301	0.4
27	223	222	225	262	238	194	291	214	0	359	53	55	40	137	145	129	87	134	145	159	143	133	109	106	138	0.9
28	114	125	163	236	37	145	127	87	57	354	305	298	294	286	303	305	194	213	88	220	256	295	223	235	274	1.5
29	207	158	11	***	168	143	194	120	86	221	212	210	212	229	236	228	235	218	199	186	185	190	189	188	207	3.6
30	191	187	191	195	190	185	188	191	195	201	221	204	202	211	220	209	224	219	215	195	197	194	191	206	202	6.3
VD	171	174	175	168	159	157	151	187	201	225	227	227	241	235	239	233	238	231	217	193	185	184	165	165	207	
VV	1.3	1.6	1.3	1.6	1.6	1.6	1.2	1.6	1.9	2.3	2.8	2.9	3.0	3.2	3.4	2.8	3.1	2.9	2.4	2.2	2.8	2.1	1.7	1.8		1.9

TOTAL NUMBER OF OBSERVATIONS = 714

NOTE: **** = MISSING DATA

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
60 METER LEVEL

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	309	285	271	289	188	158	97	21	324	349	291	222	240	226	222	199	258	24	45	35	317	272	251	262	247	2.1
2	260	174	144	233	235	131	179	167	204	239	230	197	280	281	201	138	59	251	235	204	166	147	155	176	212	3.8
3	235	238	273	215	117	180	270	0	356	319	319	165	176	309	348	71	121	14	321	225	213	212	213	19	215	0.7
4	258	113	87	212	292	239	261	317	314	317	342	305	328	342	310	325	305	302	333	21	66	58	320	278	321	2.4
5	286	274	274	288	267	288	306	318	323	341	337	332	350	341	347	348	346	339	339	359	32	45	92	1	339	3.1
6	291	238	243	268	270	93	109	317	319	336	323	333	313	321	331	359	291	227	184	129	147	182	93	215	290	0.8
7	215	165	***	259	343	***	276	261	299	324	307	290	331	314	315	311	339	0	356	41	102	119	118	140	2	0.6
8	161	272	289	***	146	168	124	16	14	80	238	338	350	337	68	354	311	270	170	149	143	141	136	128	147	0.8
9	138	121	135	142	164	193	94	***	205	208	301	65	77	227	89	123	271	223	196	182	184	111	127	103	176	2.1
10	111	154	221	65	106	134	***	102	131	170	144	244	210	207	217	230	199	225	210	197	201	190	187	181	198	2.6
11	177	167	190	186	153	164	154	189	191	202	201	203	194	190	203	205	211	217	258	248	300	311	336	60	211	5.0
12	120	198	242	159	227	178	197	211	181	161	153	312	316	297	253	196	107	163	153	109	141	190	86	148	175	2.2
13	242	211	64	100	146	250	251	325	340	6	3	322	329	337	293	262	309	307	315	341	***	162	180	132	307	1.7
14	131	264	39	82	85	90	71	7	37	16	11	343	342	263	283	296	336	281	226	206	197	195	210	211	256	0.5
15	202	182	156	111	99	126	111	194	211	214	217	208	207	201	205	205	210	228	277	319	317	126	135	140	196	2.4
16	180	163	140	140	114	101	137	43	107	206	219	224	249	246	243	234	246	253	260	277	316	299	341	291	239	2.7
17	275	270	271	240	257	168	124	72	82	356	28	9	287	298	231	281	288	266	205	189	184	182	175	173	212	2.3
18	167	160	125	153	149	202	202	206	200	206	208	202	209	206	212	210	217	221	213	200	198	193	195	208	202	7.6
19	296	267	261	261	245	216	170	82	312	201	208	204	207	203	204	227	235	227	225	212	219	278	273	358	225	5.0
20	285	258	258	221	130	242	184	191	189	197	212	205	208	203	207	202	201	200	197	184	180	170	158	161	196	6.1
21	153	163	156	157	164	155	144	167	173	197	179	184	195	197	209	199	202	202	203	202	195	195	195	188	182	7.2
22	194	191	185	180	180	183	181	188	191	188	193	178	208	215	218	197	220	231	245	232	232	215	135	143	195	5.3
23	153	147	145	155	157	158	136	109	153	197	200	193	194	227	230	205	109	114	136	204	160	148	149	89	164	4.5
24	136	197	149	124	120	141	118	219	215	246	230	255	312	86	13	316	331	62	50	140	157	194	151	152	166	1.3
25	137	131	145	162	52	69	51	312	300	301	311	329	339	325	314	316	295	146	204	48	125	146	186	133	289	0.4
26	243	302	24	79	90	90	90	90	8	322	305	329	337	356	28	179	202	309	276	347	31	251	228	258	316	0.6
27	239	237	239	268	263	246	294	219	351	357	52	59	36	131	148	129	86	137	149	163	157	145	140	122	150	1.0
28	120	203	153	243	346	135	145	104	62	352	304	300	295	289	305	306	196	212	109	227	280	319	352	302	280	1.7
29	236	199	29	98	125	147	179	168	107	222	211	209	210	228	234	229	235	215	201	191	188	194	188	191	205	4.1
30	190	190	193	199	193	188	188	191	193	200	221	203	201	209	219	208	223	220	216	204	206	204	201	212	203	7.7
VD	177	187	186	176	170	169	164	188	198	222	226	226	242	235	237	232	237	231	218	198	190	187	169	169	208	
VV	1.7	1.9	1.6	1.8	1.8	2.0	1.7	2.0	2.2	2.5	3.0	3.1	3.2	3.4	3.6	3.1	3.3	3.2	2.8	2.7	3.3	2.6	2.1	2.3		2.3

TOTAL NUMBER OF OBSERVATIONS = 714

NOTE: **** = MISSING DATA

SIGMA HORIZ. WIND DIR. @ 10M
DEGREES

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	11	6	5	12	18	12	10	20	19	26	15	12	12	11	16	16	18	10	8	6	16	8	10	9	13	26
2	13	22	20	4	8	7	14	9	9	9	10	12	12	17	12	24	21	10	10	8	6	7	7	11	12	24
3	23	6	6	9	10	20	19	25	31	30	34	13	11	27	22	20	24	14	10	5	4	19	12	25	17	34
4	10	11	24	4	16	5	(CM)	16	23	16	15	24	12	14	9	9	9	15	11	10	10	11	3	19	13	24
5	6	34	5	17	15	15	11	9	9	10	11	13	14	13	14	12	13	13	9	5	15	11	10	10	12	34
6	11	3	25	29	12	19	13	18	21	33	40	32	28	21	18	10	16	9	10	7	5	10	10	21	18	40
7	8	14	14	18	(CM)	23	15	29	35	29	24	32	32	25	24	32	21	27	9	5	7	4	10	15	20	35
8	25	23	21	9	10	16	(CM)	16	12	31	23	12	17	12	12	29	17	15	11	7	11	15	13	7	16	31
9	8	6	5	4	5	7	9	32	17	16	16	8	16	10	16	16	12	11	10	7	18	13	6	8	12	32
10	6	12	18	10	11	19	13	22	37	40	36	19	30	21	12	14	25	21	8	5	5	23	30	17	19	40
11	12	6	6	6	6	5	12	9	9	11	13	12	13	11	11	12	12	12	8	9	9	9	10	7	10	13
12	7	15	11	7	10	9	25	12	8	19	10	12	12	10	19	19	11	9	13	10	7	13	8	7	12	25
13	9	18	9	15	6	12	23	21	15	17	20	18	10	25	9	15	19	17	13	5	12	8	11	17	14	25
14	6	12	11	17	15	8	20	24	28	33	26	26	34	35	34	34	21	18	11	7	5	13	(CM)	35	21	35
15	21	7	6	4	4	5	9	24	11	15	29	27	24	21	21	18	9	12	6	9	15	8	3	6	13	29
16	11	7	11	9	8	5	12	19	24	21	12	13	12	15	13	13	9	10	8	9	18	8	17	5	12	24
17	10	4	4	13	13	13	16	25	34	22	30	27	30	35	29	15	15	12	9	6	6	6	8	7	16	35
18	19	8	19	28	9	23	30	11	9	10	12	13	14	14	15	16	14	11	9	7	6	6	5	5	13	30
19	15	6	5	8	11	31	32	15	26	14	14	12	12	13	14	12	11	11	9	7	11	11	10	16	14	32
20	22	10	5	9	10	13	11	12	11	13	13	14	14	13	14	12	11	11	11	5	2	2	4	4	10	22
21	5	6	5	4	5	6	9	11	11	14	15	14	16	12	14	12	12	12	9	5	3	13	20	14	10	20
22	22	9	9	8	18	25	8	8	9	11	16	15	14	18	15	14	15	12	9	5	4	13	6	14	12	25
23	18	11	7	7	5	8	12	14	26	28	14	15	17	25	11	10	12	8	9	11	16	7	18	11	13	28
24	23	11	12	8	11	10	32	22	24	21	15	28	29	11	12	14	10	16	13	8	10	11	18	7	16	32
25	5	7	12	9	11	9	18	16	17	13	14	17	18	16	11	13	13	11	11	17	13	7	10	16	13	18
26	14	7	(CM)	7	6	9	10	10	20	22	33	24	18	18	15	8	9	11	17	12	6	5	9	11	13	33
27	9	5	6	7	5	21	10	19	19	12	25	23	21	37	29	16	16	15	8	7	11	10	12	6	15	37
28	4	15	8	18	8	6	11	15	21	19	20	13	11	12	10	23	11	17	13	7	12	13	9	13	13	23
29	9	15	18	16	14	17	25	19	17	21	13	14	16	16	11	11	13	12	7	5	5	5	8	5	13	25
30	5	5	5	5	5	6	9	11	10	11	11	16	13	13	13	15	11	9	7	4	4	5	11	18	9	18
AV	12	11	11	11	10	13	16	17	19	20	19	18	18	18	16	16	14	13	10	7	9	10	11	12	14	
PK	25	34	25	29	18	31	32	32	37	40	40	32	34	37	34	34	25	27	17	17	18	23	30	35		40

SIGMA HORIZ. WIND DIR. @ 30M
DEGREES

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	10	7	4	9	19	9	10	20	15	24	15	10	11	10	15	14	15	9	7	6	19	8	11	10	12	24
2	14	17	22	6	5	6	13	8	8	8	9	10	10	16	11	19	22	8	9	6	5	7	5	8	11	22
3	29	18	8	10	5	22	19	28	32	25	31	10	10	23	20	18	24	14	10	4	2	18	11	11	17	32
4	21	12	11	9	14	7	16	13	19	14	15	19	10	13	8	7	8	14	9	9	12	12	6	13	12	21
5	7	12	6	10	17	6	7	9	8	9	9	11	13	11	13	11	12	11	7	4	7	7	7	7	9	17
6	13	6	20	10	7	9	11	21	18	28	35	31	25	19	17	8	12	8	9	8	4	8	20	22	15	35
7	11	(CM)	16	25	8	14	14	24	31	22	21	25	30	23	22	25	19	23	9	4	6	3	6	12	17	31
8	12	10	(CM)	15	10	20	36	25	15	32	21	11	14	11	10	26	17	14	11	5	7	12	13	6	15	36
9	7	4	4	5	8	19	10	30	15	13	14	6	13	9	21	13	11	11	8	6	15	10	4	6	11	30
10	5	9	9	8	16	9	10	17	32	31	39	17	27	18	10	14	20	14	6	3	3	15	37	24	16	39
11	19	20	14	20	10	9	15	9	9	9	11	11	12	9	10	11	10	10	7	8	9	7	8	6	11	20
12	6	13	10	6	7	6	20	9	7	15	8	11	10	8	15	15	8	7	11	8	5	9	6	5	9	20
13	9	15	8	9	6	7	22	22	13	17	18	15	9	24	8	13	17	14	10	5	11	6	13	8	12	24
14	7	16	5	12	(CM)	12	(CM)	30	33	30	24	28	29	34	31	27	24	17	10	4	2	23	34	20	21	34
15	45	27	7	3	4	4	6	31	9	13	22	23	20	19	20	16	9	11	6	7	28	5	3	6	14	45
16	10	15	8	9	5	6	13	19	25	18	11	12	10	13	12	12	9	9	7	9	12	7	18	13	12	25
17	10	9	8	17	21	19	11	27	34	24	37	23	30	30	22	14	13	11	8	4	4	4	7	5	16	37
18	8	23	17	33	9	53	19	10	9	9	10	11	12	12	14	13	12	9	7	6	5	4	5	3	13	53
19	13	6	6	12	9	14	38	16	20	12	11	11	10	12	12	11	10	10	7	4	8	11	9	23	12	38
20	24	12	6	7	10	10	25	10	9	12	11	12	12	12	12	11	9	9	9	5	2	2	5	3	10	25
21	4	5	4	4	3	5	8	10	10	13	13	13	14	11	13	11	11	10	8	4	2	24	21	17	10	24
22	25	8	4	6	24	8	7	7	7	9	14	14	12	15	13	12	13	10	7	5	4	12	5	7	10	25
23	13	6	5	5	3	6	11	13	22	29	13	14	17	23	9	10	10	7	8	9	12	4	12	16	12	29
24	11	11	13	6	8	12	22	19	19	18	14	23	28	9	13	13	9	17	11	7	6	9	16	5	13	28
25	3	3	11	7	6	7	18	15	13	12	12	16	18	12	10	12	10	11	10	18	11	7	7	10	11	18
26	10	(CM)	8	6	7	7	13	11	25	20	26	20	17	17	10	6	7	10	13	11	7	16	5	7	12	26
27	6	5	4	5	4	6	8	17	16	11	25	18	20	32	26	14	14	13	7	5	13	10	12	4	12	32
28	3	14	6	9	9	4	8	12	19	17	18	12	8	11	9	23	10	16	17	7	15	12	19	15	12	23
29	13	13	11	(CM)	10	19	25	20	20	19	12	12	15	15	10	10	11	10	7	3	3	4	6	3	12	25
30	5	4	4	4	5	4	8	9	9	10	8	13	12	12	12	13	10	8	6	3	2	3	7	18	8	18
AV	12	11	9	10	9	11	15	17	17	17	18	15	16	16	14	14	13	12	9	6	8	9	11	10	13	
PK	45	27	22	33	24	53	38	31	34	32	39	31	30	34	31	27	24	23	17	18	28	24	37	24		53

SIGMA HORIZ. WIND DIR. @ 60M
DEGREES

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	6	6	4	8	14	8	9	20	14	21	15	10	9	9	14	14	14	8	7	5	7	7	8	7	10	21
2	8	16	9	6	4	7	9	6	7	7	8	10	9	15	8	17	20	7	7	4	3	4	3	7	8	20
3	27	19	5	5	1	9	10	28	32	20	24	9	8	21	22	17	26	15	10	3	1	12	13	5	14	32
4	12	13	7	13	5	4	9	13	17	13	14	16	10	11	6	7	7	12	9	6	11	1	8	12	10	17
5	5	4	8	7	5	2	5	9	8	8	8	11	12	10	13	10	11	10	7	4	5	4	6	6	7	13
6	10	6	15	6	8	2	0	17	20	23	39	28	21	16	16	7	11	6	7	7	3	11	11	4	12	39
7	1	6	(CM)	4	4	(CM)	15	19	32	22	19	23	32	20	22	23	17	19	8	3	4	4	4	7	14	32
8	11	5	2	(CM)	5	8	8	17	18	33	19	10	14	10	9	25	14	14	10	3	4	8	8	7	11	33
9	8	5	8	12	15	10	21	(CM)	13	12	13	5	10	9	30	10	10	10	7	4	14	13	5	4	11	30
10	4	4	8	7	0	7	(CM)	19	27	25	32	17	21	15	8	13	17	13	5	2	2	7	11	19	12	32
11	10	23	26	21	18	20	24	8	8	8	10	11	11	8	9	10	9	9	6	7	8	6	7	5	12	26
12	5	9	9	5	5	5	15	9	6	11	7	10	10	7	13	7	5	5	7	8	2	7	4	4	7	15
13	8	10	7	4	4	5	21	23	11	15	15	13	7	20	7	11	15	13	9	5	(CM)	4	15	6	11	23
14	6	5	5	1	2	0	6	24	27	24	23	23	25	31	28	26	18	14	10	2	1	37	23	16	16	37
15	17	23	23	10	6	10	9	21	7	12	19	22	17	16	15	16	8	10	6	6	8	4	4	4	12	23
16	9	7	9	9	17	11	9	14	17	22	11	12	9	12	12	10	8	7	7	7	9	6	12	15	11	22
17	8	5	10	6	17	11	2	19	27	24	35	25	26	28	19	14	10	11	6	3	2	3	3	4	13	35
18	3	29	35	32	10	31	12	8	8	8	9	10	10	11	12	13	11	8	7	4	3	1	2	2	12	35
19	11	5	4	9	7	3	9	16	28	11	11	11	9	11	11	10	10	9	6	2	7	8	8	20	10	28
20	13	4	3	4	6	8	23	7	8	9	10	11	12	10	12	10	8	8	8	5	3	2	4	3	8	23
21	3	2	2	2	2	2	7	8	8	12	11	11	12	11	12	11	10	10	6	3	2	11	12	4	7	12
22	7	4	2	3	17	3	5	6	7	8	13	12	12	15	13	12	12	10	6	5	2	10	7	4	8	17
23	6	4	4	4	2	3	11	12	19	27	10	12	18	20	8	10	10	7	7	7	12	3	8	8	10	27
24	6	8	11	5	6	14	24	15	17	16	12	22	23	7	12	10	8	15	13	9	3	7	15	3	12	24
25	2	3	6	4	6	6	8	12	13	11	10	13	17	8	9	10	9	8	8	18	9	5	5	6	9	18
26	4	6	5	1	0	0	0	0	21	16	19	20	15	15	8	5	4	9	16	12	9	4	0	6	8	21
27	3	3	2	3	1	2	6	17	18	12	28	16	17	36	17	11	12	11	6	3	9	7	14	5	11	36
28	4	17	7	5	8	3	5	12	23	15	19	12	8	10	8	19	9	17	22	3	13	11	24	17	12	24
29	9	5	9	2	12	15	27	16	16	20	11	11	14	13	9	9	11	9	5	2	2	2	5	2	10	27
30	2	3	2	1	2	2	6	8	8	9	8	12	11	11	11	12	8	8	5	2	1	1	3	9	6	12
AV	8	9	9	7	7	7	11	14	16	16	16	14	14	15	13	13	11	10	8	5	5	7	8	7	10	
PK	27	29	35	32	18	31	27	28	32	33	39	28	32	36	30	26	26	19	22	18	14	37	24	20		39

TEMPERATURE @ 10M
DEGREE C

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	7	5	4	4	5	5	6	7	8	10	13	17	20	21	19	19	19	16	13	11	9	8	7	6	11	21
2	6	6	5	5	5	5	9	12	11	9	7	11	11	10	6	10	14	10	7	6	7	7	6	6	8	14
3	7	7	6	4	3	4	6	11	13	16	18	14	13	16	18	19	18	19	18	16	12	11	9	9	12	19
4	8	9	6	7	4	4	8	11	14	17	18	19	18	18	16	15	14	13	12	11	9	8	8	7	11	19
5	6	4	5	4	3	5	6	6	6	7	9	11	13	14	15	16	15	15	13	11	9	7	7	6	9	16
6	4	4	4	3	3	3	6	9	12	16	17	18	19	19	18	16	14	9	9	8	7	6	6	5	10	19
7	4	4	4	4	3	3	6	9	12	13	16	17	18	19	21	21	21	20	18	16	13	11	10	9	12	21
8	9	7	7	7	7	8	10	13	14	18	18	17	13	13	17	18	19	13	10	9	8	7	7	6	12	19
9	6	7	7	7	7	7	9	14	18	19	19	14	18	12	13	16	16	14	14	12	9	8	8	8	12	19
10	9	8	8	7	7	8	9	12	17	19	21	20	22	22	19	17	19	22	19	17	14	13	12	11	15	22
11	11	11	9	9	9	10	13	19	19	21	23	24	24	23	23	24	23	21	19	18	16	12	11	9	17	24
12	9	8	9	8	7	6	6	7	5	6	7	7	4	4	4	4	3	4	7	6	4	3	3	3	6	9
13	3	3	3	2	2	2	3	6	7	8	8	11	9	12	8	10	12	12	12	9	7	5	3	2	7	12
14	2	2	2	1	1	1	4	8	11	13	15	17	17	17	18	17	18	18	17	14	10	9	8	7	10	18
15	7	6	6	6	5	6	9	13	17	18	19	21	22	23	23	23	20	21	18	16	14	12	12	12	14	23
16	9	9	9	9	9	10	12	13	17	21	23	24	23	24	24	23	23	21	21	20	17	15	13	12	17	24
17	12	10	9	8	7	7	10	14	17	20	21	22	24	26	26	26	25	25	23	21	18	18	17	17	18	26
18	14	13	14	14	14	13	17	21	23	24	25	26	27	27	28	28	28	27	26	23	21	21	21	18	21	28
19	16	14	13	11	10	10	12	16	19	23	24	25	25	26	26	27	27	26	23	21	17	17	16	15	19	27
20	14	12	11	10	11	9	12	19	21	22	23	24	25	26	26	26	26	26	24	22	19	19	18	18	19	26
21	17	16	16	15	15	16	18	20	21	23	24	24	26	26	27	27	27	26	25	22	18	17	14	14	21	27
22	14	13	16	16	15	13	19	21	23	23	25	27	27	28	28	28	27	27	26	23	19	18	16	17	21	28
23	16	15	16	16	15	15	17	18	22	24	26	26	27	27	21	19	18	18	17	15	14	13	13	13	18	27
24	13	13	13	13	13	13	16	19	20	21	22	23	23	16	19	16	16	18	15	13	14	14	13	12	16	23
25	12	11	11	11	11	11	11	12	14	17	19	21	19	17	21	22	20	9	8	9	9	9	9	9	13	22
26	9	8	8	8	8	8	9	11	13	17	18	20	21	20	14	12	13	12	11	11	11	10	10	11	12	21
27	11	10	10	10	10	10	10	11	13	13	15	17	18	18	18	18	20	20	18	15	13	13	12	11	14	20
28	11	10	9	9	8	8	10	13	17	19	22	22	23	23	23	22	19	20	19	18	15	13	13	12	16	23
29	11	10	8	8	7	7	8	11	17	22	23	23	24	23	23	24	24	24	23	19	17	17	17	17	17	24
30	16	16	16	15	14	16	18	19	20	21	22	23	24	24	26	26	25	23	22	18	16	16	15	13	19	26
AV	10	9	9	8	8	8	10	13	15	17	19	19	20	20	20	20	19	18	17	15	13	12	11	11	14	
PK	17	16	16	16	15	16	19	21	23	24	26	27	27	28	28	28	28	27	26	23	21	21	21	18		28
MN	2	2	2	1	1	1	3	6	5	6	7	7	4	4	4	4	3	4	7	6	4	3	3	2		

MONTHLY MINIMUM = 1

TEMPERATURE @ 30M
DEGREE C

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	7	6	5	4	5	5	6	7	8	10	13	16	18	18	18	18	18	14	13	11	8	8	7	7	10	18
2	7	6	5	5	6	5	9	12	8	8	7	10	9	9	6	10	13	10	7	6	6	6	6	6	7	13
3	6	6	5	4	4	2	7	11	13	14	17	13	13	16	17	18	18	18	17	16	15	13	11	10	12	18
4	9	9	7	7	6	6	9	11	13	16	17	18	17	17	16	15	14	13	12	12	9	8	7	6	11	18
5	6	5	3	5	4	5	6	5	5	5	6	9	11	13	13	12	7	3	3	6	4	3	8	6	6	13
6	4	5	3	3	3	3	6	9	12	14	16	17	17	18	17	14	13	6	6	6	7	7	6	4	9	18
7	4	5	5	5	4	3	6	9	11	13	14	16	17	18	19	19	19	19	18	16	14	13	12	11	12	19
8	9	8	7	7	7	6	8	9	12	16	15	13	11	13	14	14	13	11	9	9	7	6	7	-2	10	16
9	3	4	7	8	8	8	10	14	16	18	17	15	17	7	11	12	9	2	9	6	6	6	7	8	10	18
10	8	9	9	8	8	8	9	12	16	18	19	19	19	19	18	17	18	19	18	17	16	14	13	8	14	19
11	9	8	11	11	12	12	14	18	19	20	21	22	22	22	22	23	22	21	19	19	16	12	11	9	16	23
12	8	6	6	6	6	5	6	5	5	6	7	6	4	4	4	4	3	4	6	5	4	4	3	3	5	8
13	4	3	3	3	2	2	3	4	4	6	7	9	8	7	3	7	9	-2	4	3	7	6	5	2	5	9
14	2	3	2	1	1	2	3	8	11	12	13	15	15	16	17	16	18	18	16	14	12	11	8	8	10	18
15	7	6	6	8	7	7	8	12	14	16	17	18	18	19	19	20	18	19	17	14	13	12	12	12	13	20
16	11	9	11	11	10	11	12	13	16	17	3	15	15	16	17	17	17	16	16	15	12	11	8	8	13	17
17	7	6	7	-7	-2	1	-1	11	4	13	14	16	18	19	20	20	20	23	20	17	15	16	15	13	12	23
18	12	13	14	12	11	11	7	6	8	9	9	11	11	13	19	27	27	27	26	17	8	8	8	8	13	27
19	4	8	3	7	12	11	13	16	18	22	22	23	23	24	24	25	25	24	23	22	20	18	17	16	18	25
20	15	13	12	11	12	10	13	18	21	21	21	22	23	24	24	24	25	25	24	22	21	21	19	18	19	25
21	18	17	17	16	16	16	18	19	21	21	22	23	24	24	24	25	25	24	24	22	21	19	17	16	20	25
22	17	16	19	18	17	16	19	21	22	22	23	24	24	25	25	26	26	26	24	23	21	20	16	16	21	26
23	14	15	16	16	14	14	14	14	17	21	21	21	22	22	17	16	15	14	13	14	11	9	9	9	15	22
24	9	9	10	11	13	13	15	17	18	19	19	22	22	14	17	14	16	17	14	14	15	14	13	12	15	22
25	12	12	11	11	11	11	11	12	14	17	18	19	17	16	20	21	19	8	9	6	8	8	10	10	13	21
26	9	9	9	9	9	9	9	11	13	16	17	19	19	19	13	8	11	6	7	6	4	3	3	4	10	19
27	4	4	4	3	3	4	4	9	12	12	12	14	14	11	11	12	16	18	12	10	11	13	12	9	10	18
28	7	8	9	9	8	8	8	11	16	18	20	21	21	22	21	21	17	18	18	17	13	12	11	8	14	22
29	7	-1	9	8	7	3	9	9	13	21	21	22	22	22	22	23	23	23	22	18	9	16	16	10	15	23
30	9	8	8	8	7	8	11	17	12	11	12	13	14	14	16	16	18	16	14	12	11	10	9	8	12	18
AV	8	8	8	8	8	7	9	12	13	15	15	17	17	17	17	17	17	15	15	13	12	11	10	9	12	
PK	18	17	19	18	17	16	19	21	22	22	23	24	24	25	25	27	27	27	26	23	21	21	19	18		27
MN	2	-1	2	-7	-2	1	-1	4	4	5	3	6	4	4	3	4	3	-2	3	3	4	3	3	-2		

MONTHLY MINIMUM = -7

TEMPERATURE @ 60M
DEGREE C

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	7	6	5	4	4	4	5	7	8	10	13	17	18	19	18	19	18	14	12	11	9	8	8	7	11	19
2	7	7	6	6	6	6	10	12	11	8	6	11	9	9	6	11	13	10	7	6	8	7	8	7	8	13
3	8	7	7	6	5	6	7	11	13	15	16	13	13	16	17	18	18	18	18	16	15	14	11	10	12*	18
4	9	10	8	8	7	6	8	11	13	16	18	18	17	17	16	14	13	13	12	11	10	9	8	8	12	18
5	7	6	6	6	5	6	6	6	6	7	8	9	12	13	14	14	14	14	13	11	11	10	8	8	9	14
6	6	6	6	4	4	4	7	9	12	14	16	17	17	18	17	15	13	9	7	7	7	7	7	6	10	18
7	5	5	5	4	4	4	6	9	11	13	14	16	17	18	19	19	19	19	18	16	14	13	12	12	12	19
8	11	9	8	7	8	11	12	13	14	17	18	16	13	13	16	17	18	13	10	10	9	8	8	7	12	18
9	8	8	8	9	9	9	11	14	17	18	18	16	17	14	13	16	14	14	14	12	10	9	9	10	12	18
10	10	11	10	9	9	9	11	12	16	18	19	19	21	21	18	17	19	19	19	17	17	16	14	13	15	21
11	13	12	12	12	12	13	16	18	19	21	22	23	23	23	22	23	23	21	18	18	16	12	11	9	17	23
12	9	8	7	7	7	6	6	6	4	6	7	6	4	4	4	3	3	4	6	5	4	4	3	4	5	9
13	4	3	3	3	2	2	3	4	6	8	8	9	8	11	8	8	11	11	11	9	8	7	6	4	6	11
14	3	3	3	3	3	3	4	8	11	13	14	15	15	16	16	16	17	17	16	14	13	12	9	9	10	17
15	9	8	8	8	8	8	11	13	16	17	18	19	21	22	22	22	19	20	18	16	14	13	13	13	15	22
16	12	11	12	12	12	12	14	14	17	21	22	22	22	22	23	22	22	21	21	20	18	16	15	13	17	23
17	13	11	11	10	8	8	11	14	17	19	20	21	23	24	24	24	24	24	23	21	20	20	19	18	18	24
18	17	16	17	17	16	16	18	21	22	23	24	25	26	26	27	27	27	27	26	23	23	23	22	22	22	27
19	18	15	14	13	12	12	13	16	19	22	23	24	24	24	25	25	26	24	23	22	21	18	17	17	19	26
20	15	13	13	12	12	11	14	19	21	22	22	23	24	25	25	25	26	25	24	22	21	21	19	19	20	26
21	19	18	18	18	17	17	18	19	21	22	23	23	24	25	26	26	26	26	24	23	22	20	18	18	21	26
22	19	19	21	19	18	18	19	21	22	23	24	26	26	27	27	27	27	26	24	23	23	21	19	19	22	27
23	18	18	17	17	16	16	17	18	21	23	24	25	26	26	22	19	18	17	17	15	14	14	14	14	19	26
24	14	14	14	13	13	13	15	18	19	20	21	22	22	16	18	15	16	17	14	14	15	14	13	12	16	22
25	13	12	12	12	11	11	12	12	14	17	18	19	18	16	20	21	19	9	9	9	9	9	11	11	13	21
26	10	9	9	9	9	9	10	12	14	16	17	19	19	19	14	12	13	11	11	11	11	10	10	10	12	19
27	10	10	10	10	10	10	10	11	12	13	14	15	16	17	17	18	19	19	18	16	14	13	13	12	14	19
28	12	12	10	10	9	9	11	14	17	19	21	22	22	23	22	21	19	19	19	18	17	14	13	13	16	23
29	12	11	11	9	9	10	11	13	17	21	22	22	23	22	23	23	24	23	22	21	20	19	19	20	18	24
30	19	18	18	18	17	17	18	18	19	20	21	22	23	23	24	24	23	23	22	21	20	19	18	17	20	24
AV	11	10	10	10	9	10	11	13	15	17	18	18	19	19	19	19	19	18	17	15	14	13	13	12	14	
PK	19	19	21	19	18	18	19	21	22	23	24	26	26	27	27	27	27	27	26	23	23	23	22	22		27
MN	3	3	3	3	2	2	3	4	4	6	6	6	4	4	4	3	3	4	6	5	4	4	3	4		

MONTHLY MINIMUM = 2

DELTA TEMPERATURE 60-10M
DEGREE C*100

CB-TRACT
TRAILER AA23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	-11	61	6	-6	-72	-78	-78	-72	-67	-56	-67	-100	-172	-167	-106	-100	-94	-106	-78	-39	11	28	56	67	-52	67
2	78	72	50	56	56	33	50	-78	-83	-106	-78	-89	-122	-128	-44	-17	-133	-56	-28	0	61	50	89	67	-13	89
3	128	44	17	106	117	94	61	-28	-100	-106	-161	-117	-50	-89	-122	-133	-94	-122	-106	28	228	283	156	100	6	283
4	106	89	200	94	189	56	-22	-72	-128	-100	-111	-139	-144	-106	-72	-78	-72	-61	-44	-28	28	33	50	100	-10	200
5	94	56	39	78	128	78	17	-50	-61	-72	-89	-106	-111	-122	-117	-133	-111	-111	-89	-83	67	239	100	139	-9	239
6	167	83	122	94	94	83	44	-11	-117	-117	-167	-189	-211	-167	-122	-128	-167	-67	-39	-28	33	100	122	83	-21	167
7	50	11	61	50	61	39	-61	-33	-144	-78	-122	-194	-183	-172	-211	-172	-139	-144	-117	-6	111	156	178	156	-38	178
8	172	178	83	-11	133	267	150	44	0	-72	-78	-72	-33	-44	-128	-117	-122	-67	-17	17	50	44	11	89	20	267
9	150	156	150	222	228	244	78	-44	-94	-111	-117	72	-67	111	0	-67	-100	-56	-28	-22	6	22	94	106	39	244
10	122	156	172	161	117	94	106	22	-94	-83	-144	-150	-194	-128	-111	-67	-94	-172	-100	17	217	200	206	217	19	217
11	228	178	217	233	256	233	144	-44	-56	-78	-100	-117	-122	-106	-83	-100	-94	-44	-28	17	-28	-50	-44	-22	16	256
12	0	-44	-100	-50	-6	-39	0	-117	-78	-61	-78	-106	-100	-111	-94	-83	-78	-83	-133	-72	44	78	33	33	-52	78
13	-6	6	0	6	39	61	-22	-200	-117	-144	-256	-256	-228	-206	-233	-283	-156	-139	-117	-150	50	106	183	133	-80	183
14	61	94	128	194	144	94	-94	-33	-89	-194	-272	-289	-172	-206	-206	-217	-133	-200	-122	-6	200	244	122	161	-33	244
15	183	194	233	233	222	200	-61	-39	-117	-106	-139	-244	-189	-150	-161	-139	-144	-111	-33	-111	-17	56	133	183	-5	233
16	200	156	228	250	239	178	167	56	28	-78	-117	-156	-128	-178	-156	-128	-89	-67	-44	-33	39	94	111	89	28	250
17	72	94	100	128	106	61	67	-17	-89	-133	-83	-122	-211	-156	-194	-144	-106	-117	-89	11	178	211	183	144	-4	211
18	228	228	244	283	194	178	117	-39	-72	-83	-106	-111	-139	-128	-128	-128	-106	-94	-61	56	61	-506	-161	267	0	283
19	133	50	106	178	150	111	33	-22	-50	-83	-106	-122	-144	-133	-117	-128	-122	-100	-33	100	294	150	122	117	16	294
20	83	72	111	128	106	167	139	0	-78	-78	-111	-128	-128	-117	-128	-117	-100	-94	-72	6	150	178	111	161	11	178
21	189	183	183	200	189	122	-22	-61	-78	-83	-106	-122	-128	-133	-128	-117	-106	-94	-72	33	206	250	333	383	43	383
22	450	522	456	400	261	394	33	-44	-72	-72	-83	-94	-144	-133	-144	-117	-111	-133	-106	-11	328	328	272	244	101	522
23	206	211	72	83	111	61	-44	6	-83	-61	-106	-117	-133	-139	-78	-33	-72	-61	-44	-39	0	39	72	78	-3	211
24	78	33	17	44	17	28	-44	-94	-89	-139	-106	-144	-194	-39	-89	-94	-72	-78	-44	61	78	-17	-22	0	-38	78
25	78	89	78	33	6	39	11	-67	-83	-128	-178	-161	-156	-50	-89	-106	-78	17	50	-6	-17	22	89	106	-21	106
26	89	56	6	17	39	39	28	11	-11	-111	-133	-150	-161	-117	-100	-67	-44	-78	-67	-89	-61	-61	-50	-39	-44	89
27	-56	-33	-22	-28	-22	-33	-39	-61	-206	-78	-100	-139	-161	-117	-100	-89	-117	-111	-61	-144	-256	-17	17	-67	-85	17
28	-417	83	67	106	56	61	33	6	-94	-122	-156	-311	-167	-156	-122	-172	-94	-100	-61	17	-28	-483	-61	-161	-95	106
29	78	17	117	172	183	211	222	172	17	-117	-117	-117	-111	-94	-83	-83	-106	-89	-33	117	217	228	178	156	47	228
30	228	200	211	267	211	33	6	-44	-67	-78	-117	-100	-122	-133	-144	-117	-117	-61	-6	178	289	28	-83	294	31	294
AV	105	110	112	124	118	104	34	-32	-79	-98	-123	-140	-144	-120	-120	-116	-106	-93	-61	-7	85	68	87	113	-8	
PK	450	522	456	400	261	394	222	172	28	-56	-67	72	-33	111	0	-17	-44	17	50	178	328	328	333	383		522
MN	-417	-44	-100	-50	-72	-78	-94	-200	-206	-194	-272	-311	-228	-206	-233	-283	-167	-200	-133	-150	-256	-506	-161	-161		

MONTHLY MINIMUM = -506

BAROMETRIC PRESSURE
MILLIBARS

CB-TRACT
TRAILER AB23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	783	783	784	784	784	784	783	783	783	783	783	783	782	782	782	782	782	782	783	783	784	784	785	785	783	785
2	785	785	785	785	785	785	785	786	786	787	788	787	788	788	789	788	788	789	790	790	791	791	791	791	788	791
3	791	791	791	792	792	792	792	793	793	793	793	793	793	792	792	792	791	791	791	791	791	792	792	792	792	793
4	791	791	791	791	791	791	791	791	791	791	790	790	790	789	789	790	790	790	791	791	791	792	791	791	791	792
5	792	792	792	792	792	792	793	793	794	794	794	794	794	793	793	793	793	792	793	793	793	794	794	794	793	794
6	794	794	794	794	794	794	794	794	794	794	794	793	793	792	792	792	792	793	793	793	794	794	794	794	793	794
7	794	793	793	793	793	793	794	794	794	793	794	793	793	793	792	792	792	792	792	792	792	792	792	792	793	794
8	792	792	792	792	792	792	792	793	793	792	792	792	792	792	792	791	791	792	793	792	792	793	793	792	792	793
9	792	792	792	791	792	792	792	792	792	792	792	791	791	791	791	791	792	792	792	792	792	793	793	793	792	793
10	793	793	793	793	793	793	794	794	794	794	793	793	792	792	792	792	791	791	791	790	790	791	791	790	792	794
11	790	790	789	789	789	789	789	788	788	788	787	787	786	786	785	784	784	784	784	785	786	787	787	787	787	790
12	787	787	787	787	787	787	787	787	787	788	788	788	789	789	789	790	789	789	789	790	790	791	791	791	789	791
13	791	791	791	792	792	792	793	793	794	794	794	794	795	795	795	795	795	795	795	796	796	797	797	797	794	797
14	797	797	797	797	797	797	797	797	797	797	797	796	796	796	795	795	794	794	794	794	795	795	795	795	796	797
15	795	794	794	794	794	794	794	794	794	794	794	793	793	793	792	792	792	792	792	792	792	793	792	792	793	795
16	792	792	791	792	792	792	792	792	792	792	792	792	792	792	791	791	791	791	792	792	792	793	793	793	792	793
17	793	793	794	794	794	794	794	795	795	795	795	794	794	794	793	793	793	792	793	793	792	792	792	792	793	795
18	791	791	791	791	791	791	791	791	791	791	791	791	790	790	790	789	789	789	789	789	788	789	789	789	790	791
19	789	790	790	790	790	791	791	791	791	790	790	790	790	789	789	789	789	788	789	788	789	790	790	790	790	791
20	790	790	790	790	789	790	790	790	791	791	791	790	790	790	789	789	789	789	789	789	789	790	790	789	790	791
21	789	789	790	790	791	791	792	792	792	793	792	792	792	792	793	793	793	793	793	793	793	794	794	794	792	794
22	794	795	795	795	795	796	796	796	797	797	797	797	797	796	796	796	795	795	795	795	796	796	796	796	796	797
23	796	796	796	796	796	797	797	797	797	797	797	796	796	795	795	796	796	795	796	796	796	797	796	796	796	797
24	796	796	796	796	795	796	795	796	795	795	795	795	794	794	793	794	794	794	794	794	794	795	795	795	795	796
25	794	794	794	793	793	793	793	793	793	793	793	792	792	791	791	790	790	792	792	792	792	793	792	792	792	794
26	791	791	791	791	792	792	792	792	792	792	792	792	792	791	791	792	792	792	793	793	793	793	793	793	792	793
27	793	793	793	793	793	793	793	793	793	794	794	794	793	793	793	793	793	792	793	792	793	793	793	793	793	794
28	793	793	793	793	794	794	793	794	794	793	793	793	792	792	792	792	792	792	791	791	792	792	792	792	793	794
29	792	792	792	792	792	792	792	791	791	791	791	791	790	790	790	790	789	789	789	789	789	789	789	788	790	792
30	788	788	788	788	789	789	789	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790
AV	792	792	792	792	792	792	792	792	792	792	792	792	792	791	791	791	791	791	791	791	792	792	792	792	792	
PK	797	797	797	797	797	797	797	797	797	797	797	797	797	796	796	796	796	795	796	796	796	797	797	797		797
MN	783	783	784	784	784	784	783	783	783	783	783	783	782	782	782	782	782	782	783	783	784	784	785	785		

MONTHLY MINIMUM = 782

PRECIPITATION
CM*100

CB-TRACT
TRAILER AB23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TL	PEAK
1									(MT)	(MT)															( )	
2																									( )	
3																							8		8	8
4																									( )	
5																									( )	
6																									( )	
7																									( )	
8															6					12					18	12
9													12		3										15	12
10																									( )	
11																									( )	
12																					5	5	5		15	5
13	57	50																							107	57
14																				5					5	5
15															3										3	3
16																									( )	
17																									( )	
18																									( )	
19																									( )	
20																									( )	
21																									( )	
22																									( )	
23								2	3																5	3
24																									( )	
25																		12	11						23	12
26		25																25	25	29					105	29
27													70	70											140	70
28							20	18																	38	20
29																									( )	
30																									( )	
TL	57	75	( )	( )	( )	( )	20	20	3	( )	( )	( )	82	70	12	( )	( )	37	36	46	5	5	13	( )	( )	
PK	57	50					20	18	3				70	70	6			25	25	29	5	5	8			70

PRECIPITATION
CM*100

CB TRACT
MRI AD28
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1																3			3		3				8
2														5		3				5					13
3																						3	3		5
4																			3				3		5
5			3							3														3	8
6					3		3												3	63					71
7																									
8															3					5					8
9													36		5										41
10																5									5
11																									
12			28	3		3		13	25	3			20	23	25	25	13								180
13		3																							3
14																									
15																									
16																									
17																									
18																									
19																									
20																									
21																									
22																									
23																									
24															5		46			3					53
25									3					20				69	46	3	3				142
26															20		3	63	30	30	30	10	10		198
27				3	3	3																			8
28																									
29																									
30																									
TL		3	30	5	5	5	3	13	28	5			56	48	58	36	61	132	84	109	36	13	15	3	747

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STABILITY CLASS USING DT/DZ                                          CB-TRACT
DT 60-10M                                                            TRAILER AA23
WS 10M                                                               JUNE  1983
                                                                     OCCIDENTAL OIL SHALE, INC.

                                        HOUR (LOCAL STANDARD TIME)

DAY   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  AVE

  1   E   E   E   E   D   C   C   D   D   D   D   D   D   D   C   B   B   C   C   D   E   E   E   E   D
  2   F   E   E   E   E   E   E   D   C   D   C   C   C   B   D   E   A   D   D   E   E   E   F   E   D
  3   F   E   E   F   F   F   E   D   A   A   A   B   D   B   A   B   B   A   A   E   F   F   F   F   D
  4   F   F   F   F   F   E  ( )  D   A   B   B   B   B   B   D   C   D   D   D   D   E   E   E   F   D
  5   F   E   E   F   F   F   E   D   D   D   B   B   B   B   B   B   B   B   B   C   E   F   F   F   D
  6   F   F   F   F   F   F   E   E   A   A   A   A   B   B   B   B   A   D   D   D   E   F   F   F   D
  7   E   E   E   E  ( )  E   D   D   A   C   A   A   A   A   B   A   B   A   A   E   F   F   F   F   C
  8   F   F   F   E   F   F  ( )  E   E   D   C   D   D   D   B   A   A   D   E   E   E   E   E   F   D
  9   F   F   F   F   F   F   F   D   B   B   A   E   D   E   E   D   B   D   D   E   E   E   F   F   E
 10   F   F   F   F   F   F   F   E   B   C   A   B   B   B   B   D   B   B   B   E   E   F   F   F   D
 11   F   F   F   F   F   F   F   D   D   D   C   C   D   D   D   D   D   D   D   E   D   D   D   E   E
 12   E   D   A   D   E   D   E   B   C   D   C   B   A   B   B   C   C   C   A   D   E   F   E   E   C
 13   E   E   E   E   E   E   E   A   B   B   A   B   C   B   D   B   B   B   B   A   E   F   F   F   D
 14   E   F   F   F   F   F   B   D   B   A   A   A   A   A   A   A   A   B   A   E   F   F  ( )  F   C
 15   F   F   F   F   F   F   D   D   B   B   B   B   B   B   B   B   B   B   D   B   E   E   F   F   D
 16   F   F   F   F   F   F   F   E   E   C   B   B   C   B   C   B   B   D   D   D   E   F   F   F   D
 17   E   F   F   F   F   E   E   E   B   A   C   A   A   A   B   B   B   B   B   E   E   D   E   E   D
 18   F   F   F   F   F   F   F   D   D   D   D   D   D   D   C   C   D   D   D   E   E   B   B   E   D
 19   F   E   F   F   F   F   E   E   D   C   C   D   D   D   D   D   D   D   D   E   E   F   F   F   E
 20   F   E   F   F   F   F   F   E   C   C   C   C   D   D   D   D   D   D   D   E   E   E   E   E   E
 21   E   E   E   E   E   E   E   D   D   C   D   D   D   D   D   D   D   C   D   E   E   F   F   F   E
 22   F   F   F   F   F   F   E   D   D   D   C   B   B   B   B   B   B   B   B   E   F   F   F   F   D
 23   F   F   E   E   E   E   D   E   C   D   C   C   B   B   C   D   D   D   D   D   E   E   E   F   D
 24   F   E   E   E   E   E   D   B   B   B   B   A   A   D   B   B   D   C   D   E   F   E   E   E   D
 25   F   F   F   E   E   E   E   D   C   B   B   B   A   D   B   B   C   E   E   E   E   E   F   F   D
 26   F   E  ( )  E   E   E   E   E   E   A   A   A   B   A   B   D   D   C   D   B   D   D   D   D   D
 27   D   D   E   D   E   D   D   D   A   C   A   A   A   A   A   B   A   A   D   B   A   E   E   D   C
 28   A   F   E   F   E   E   E   E   B   A   B   B   D   C   C   B   B   B   D   E   D   A   D   A   C
 29   F   E   F   F   F   F   F   F   E   A   B   B   B   B   C   C   B   B   D   E   E   E   F   E   D
 30   E   E   E   E   E   E   E   D   D   D   D   C   C   C   B   B   C   D   E   F   F   E   C   F   D

AVE   F   E   E   F   F   E   E   D   C   C   B   B   C   C   C   C   C   C   C   D   E   E   E   E   D


  TOTAL OCCURRENCES:  A= 65    B=118    C= 55    D=145    E=172    F=160    HOURS MISSING=  5
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NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

NITRIC OXIDE (NO) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(6/01/83 TO 6/30/83)

	WIND DIRECTION																	
CONCENTRATION MAX UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	1	1	2	2	2	2	2	2	1	2	2	1	1	1	1	1	1	
GT 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
60. - 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
55. - 60. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
50. - 55. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
45. - 50. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
40. - 45. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
35. - 40. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
30. - 35. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
25. - 30. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
20. - 25. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
15. - 20. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
10. - 15. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
5. - 10. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 5. :	29	13	18	13	36	41	46	51	51	149	96	34	18	26	51	30	5 :	707
TOTAL :	29	13	18	13	36	41	46	51	51	149	96	34	18	26	51	30	5	707
MEAN CONC.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

OXIDES OF NITROGEN (NOX) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(6/01/83 TO 6/30/83)

CONCENTRATION UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	0	
GT 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
60. - 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
55. - 60. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
50. - 55. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
45. - 50. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
40. - 45. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
35. - 40. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
30. - 35. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
25. - 30. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
20. - 25. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
15. - 20. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
10. - 15. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
5. - 10. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 5. :	29	13	18	13	36	41	46	51	51	149	96	34	18	26	51	30	5 :	707
TOTAL :	29	13	18	13	36	41	46	51	51	149	96	34	18	26	51	30	5	707
MEAN CONC.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

NITROGEN DIOXIDE (NO2) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(6/01/83 TO 6/30/83)

CONCENTRATION UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	0	
GT 65.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60. - 65.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55. - 60.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50. - 55.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45. - 50.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40. - 45.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35. - 40.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30. - 35.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25. - 30.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20. - 25.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15. - 20.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10. - 15.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5. - 10.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LT 5.	29	13	18	13	36	41	46	51	51	149	96	34	18	26	51	30	5	707
TOTAL	29	13	18	13	36	41	46	51	51	149	96	34	18	26	51	30	5	707
MEAN CONC.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

OZONE (O3) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(6/01/83 TO 6/30/83)

CONCENTRATION UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	109	105	121	109	101	107	135	115	111	131	121	117	117	119	119	119	82	
GT 140. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
130. - 140. :	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0 :	2
120. - 130. :	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0 :	3
110. - 120. :	0	0	0	0	0	0	0	1	1	1	1	1	1	2	4	1	0 :	13
100. - 110. :	4	1	0	1	1	1	0	1	1	7	15	3	0	1	0	3	0 :	39
90. - 100. :	2	1	2	1	0	0	3	6	1	37	12	6	4	2	7	4	0 :	88
80. - 90. :	10	4	3	5	3	4	10	6	17	34	22	10	6	9	19	9	1 :	172
70. - 80. :	10	3	6	3	6	13	12	5	11	30	19	5	2	5	12	10	0 :	152
60. - 70. :	3	2	2	3	17	13	10	23	11	17	13	4	4	4	7	3	1 :	137
50. - 60. :	0	2	1	1	5	5	9	3	8	16	9	3	1	2	0	1	1 :	67
40. - 50. :	1	1	3	1	4	4	1	3	1	5	4	0	0	0	2	1	0 :	31
30. - 40. :	0	0	0	0	0	1	1	2	0	1	1	3	0	0	2	0	2 :	13
20. - 30. :	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0 :	1
LT 20. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
TOTAL :	30	14	18	15	37	41	47	50	51	150	97	35	18	25	53	32	5	718
PERCENT	4.	2.	3.	2.	5.	6.	7.	7.	7.	21.	14.	5.	3.	3.	7.	4.	1.	100.

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

CARBON MONOXIDE (CO) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(6/01/83 TO 6/30/83)

CONCENTRATION MAX UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	80	80	80	80	80	80	80	80	80	80	80	80	68	80	80	80	80	
GT 1300. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
1200. -1300. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
1100. -1200. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
1000. -1100. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
900. -1000. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
800. - 900. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
700. - 800. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
600. - 700. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
500. - 600. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
400. - 500. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
300. - 400. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
200. - 300. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
100. - 200. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 100. :	29	13	17	13	37	41	46	51	51	150	97	34	18	26	52	30	5 :	710
TOTAL :	29	13	17	13	37	41	46	51	51	150	97	34	18	26	52	30	5	710
MEAN CONC.	63	64	68	63	57	59	60	59	59	53	57	61	57	57	64	66	68	59

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

SULFUR DIOXIDE (SO2) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(6/01/83 TO 6/30/83)

CONCENTRATION UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	7	2	5	2	7	2	2	5	2	5	5	2	81	26	7	165	2	
GT 13. :	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0 :	3
12. - 13. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
11. - 12. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
10. - 11. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
9. - 10. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
8. - 9. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
7. - 8. :	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0 :	4
6. - 7. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
5. - 6. :	0	0	1	0	1	0	0	2	0	11	4	0	2	1	2	0	0 :	24
4. - 5. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
3. - 4. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
2. - 3. :	5	1	4	5	9	7	10	7	8	42	27	5	2	7	13	8	1 :	161
1. - 2. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 1. :	22	12	13	8	26	34	36	42	43	97	65	29	13	15	35	20	4 :	514
TOTAL :	28	13	18	13	37	41	46	51	51	150	96	34	18	24	51	30	5	706
MEAN CONC.	0	0	0	1	0	0	0	0	0	1	0	0	5	2	1	6	0	1

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

HYDROGEN SULFIDE (H2S) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(6/01/83 TO 6/30/83)

CONCENTRATION UG/M**3			WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM		TOTAL
MAX			5	4	6	6	6	8	8	6	8	13	8	8	6	6	6	8	2		
GT	13.	:	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	:	1
12. -	13.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
11. -	12.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
10. -	11.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
9. -	10.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
8. -	9.	:	0	0	0	0	0	1	1	0	1	5	1	2	0	0	0	1	0	:	12
7. -	8.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
6. -	7.	:	0	0	1	2	6	6	4	6	4	13	8	4	3	1	5	2	0	:	65
5. -	6.	:	2	0	1	0	5	3	0	4	3	11	1	0	1	2	4	2	0	:	39
4. -	5.	:	5	4	1	1	2	3	0	5	6	28	12	2	0	7	5	5	0	:	86
3. -	4.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
2. -	3.	:	3	2	5	1	6	8	13	15	18	28	22	8	4	8	7	2	1	:	151
1. -	2.	:	8	3	4	5	6	9	11	9	7	20	24	8	3	3	8	6	1	:	135
LT	1.	:	11	5	6	5	11	11	17	12	12	43	28	11	7	4	23	14	3	:	223
TOTAL		:	29	14	18	14	36	41	46	51	51	149	96	35	18	25	52	32	5		712
MEAN CONC.			1	1	2	1	2	2	1	2	2	2	2	2	2	2	2	2	0		2

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

10 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23   PERIOD(6/01/83 TO 6/30/83)

	WIND DIRECTION																	
WIND SPEED METERS/SEC	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX	4	5	4	4	4	4	4	5	6	8	8	7	5	6	6	5	0	
GT 11. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
8. - 11. :	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0 :	2
5. - 8. :	0	1	0	0	0	0	0	1	6	50	16	5	1	3	4	1	0 :	88
3. - 5. :	5	0	1	1	1	2	3	16	17	44	22	7	5	5	8	13	0 :	150
1. - 3. :	15	5	7	7	24	27	29	22	15	32	38	14	6	10	31	13	0 :	295
LT 1. :	10	8	10	7	12	12	15	12	13	23	20	9	6	8	10	5	0 :	180
TOTAL :	30	14	18	15	37	41	47	51	51	150	97	35	18	26	53	32	0	715
PERCENT	4.	2.	3.	2.	5.	6.	7.	7.	7.	21.	14.	5.	3.	4.	7.	4.	0.	100.

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

30 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(6/01/83 TO 6/30/83)

WIND SPEED METERS/SEC		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR		TOTAL
MAX		6	7	5	5	6	6	7	9	12	10	11	10	7	8	8	7	0		
GT 11.	:	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	:	2
8. - 11.	:	0	0	0	0	0	0	0	1	6	38	11	2	0	5	1	0	0	:	64
5. - 8.	:	1	1	1	1	1	2	3	16	26	37	21	7	4	4	5	6	0	:	136
3. - 5.	:	2	3	0	2	1	11	15	14	14	28	14	7	5	5	17	15	0	:	153
1. - 3.	:	14	3	7	8	22	30	22	13	8	15	21	13	14	11	24	12	0	:	237
LT 1.	:	8	7	3	5	10	10	14	7	8	10	5	17	4	4	6	4	0	:	122
TOTAL	:	25	14	11	16	34	53	54	51	63	128	73	46	27	29	53	37	0		714
PERCENT		4.	2.	2.	2.	5.	7.	8.	7.	9.	18.	10.	6.	4.	4.	7.	5.	0.		100.

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

60 METER LEVEL CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(6/01/83 TO 6/30/83)

WIND SPEED		WIND DIRECTION																	
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX METERS/SEC		6	7	5	5	7	6	8	10	12	11	12	11	7	9	9	7	0	
GT 11.	:	0	0	0	0	0	0	0	0	1	4	1	1	0	0	0	0	0 :	7
8. - 11.	:	0	0	0	0	0	0	2	9	20	53	13	4	0	4	3	0	0 :	108
5. - 8.	:	1	1	1	1	1	4	4	12	19	37	20	5	5	5	4	12	0 :	132
3. - 5.	:	3	2	3	2	2	5	16	14	8	21	14	9	11	3	20	13	0 :	146
1. - 3.	:	13	7	6	7	14	17	28	22	11	11	10	12	17	17	21	11	0 :	224
LT 1.	:	7	5	3	6	9	5	7	4	6	4	7	10	9	6	7	2	0 :	97
TOTAL	:	24	15	13	16	26	31	57	61	65	130	65	41	42	35	55	38	0	714
PERCENT		3.	2.	2.	2.	4.	4.	8.	9.	9.	18.	9.	6.	6.	5.	8.	5.	0.	100.

0 = NO OBSERVATIONS

FIVE MAXIMUM SLIDING AVERAGE
UG/M**3

C-B TRACT
SITE AB23
JUNE 1983
CATHEDRAL BLUFFS SHALE OIL CO.

COMPONENT	AVG. TIME	RANK	DAY	HOUR(BEG)	VALUE
S02	3 HR				
		1	14	16	6.1
		2	28	17	6.1
		3	29	1	6.1
		4	28	14	5.2
		5	28	20	5.2
S02	24 HR				
		1	28	14	4.7
		2	29	14	2.6
		3	10	5	2.1
		4	25	9	1.9
		5	13	22	1.5
CO	1 HR				
		1	24	16	80.0
		2	24	18	80.0
		3	24	19	80.0
		4	24	20	80.0
		5	24	21	80.0
CO	8 HR				
		1	24	18	80.0
		2	25	2	80.0
		3	25	10	80.0
		4	25	18	80.0
		5	26	2	80.0
03	1 HR				
		1	2	16	135.4
		2	2	15	131.5
		3	2	17	121.6
		4	30	13	121.6
		5	30	14	121.6
PART	24 HR				
		1	23	1	27.2
		2	19	1	24.2
		3	27	1	13.4
		4	15	1	12.3
		5	7	1	9.9

DATA ACQUISITION INSTRUMENT EFFICIENCY
CATHEDRAL BLUFFS SHALE OIL COMPANY
A.Q. TRAILER AB23

JUNE 1983

GASEOUS PARAMETERS

NOX: 100 %

NO: 100

NO2: 100

O3: 100

CO: 100

SO2: 100

H2S: 100

PARTICULATES: 86 %

METEOROLOGICAL PARAMETERS

WIND SPEED	
10 M:	100 %
30 M:	100
60 M:	100
WIND DIRECTION	
10 M:	100
30 M:	100
60 M:	100
SIGMA HORIZONTAL WIND DIRECTION	
10 M:	100
30 M:	100
60 M:	100
TEMPERATURE	
10 M:	100
30 M:	100
60 M:	100
DELTA TEMPERATURE:	100
RELATIVE HUMIDITY:	100
SOLAR RADIATION:	98
BAROMETRIC PRESSURE:	100
PRECIPITATION:	100

JULY

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NITRIC OXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
2	0	1	0	0	0	1	0	1	0	1	0	0	0	0	1	0	0	0	0	0	1	0	1	2	0	2
3	0	0	0	1	1	1	1	1	0	1	0	1	0	0	1	0	1	0	0	1	1	0	0	1	1	1
4	0	1	0	0	0	0	1	1	0	1	1	1	0	0	0	0	1	0	0	0	1	1	0	1	1	1
5	1	0	0	0	1	0	1	1	0	1	0	0	(CA)	(CA)	(CA)	2	1	1	1	0	1	1	0	2	1	2
6	0	1	1	0	1	1	1	1	1	0	0	1	0	1	0	1	1	1	1	0	0	1	1	2	1	2
7	1	0	0	0	1	1	1	1	1	1	0	0	1	1	0	1	1	0	0	1	0	0	0	1	1	1
8	0	1	0	1	0	0	0	0	1	0	1	1	1	1	0	0	0	0	0	1	1	0	0	2	1	2
9	0	1	1	1	0	1	0	0	1	1	1	0	0	0	1	1	0	1	0	0	0	1	1	1	1	1
10	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1
11	0	0	0	1	1	1	1	1	0	1	0	1	1	0	0	0	0	0	0	1	0	0	0	1	1	1
12	0	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	2
13	0	1	0	0	1	0	0	1	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	1	0	1
14	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	1
15	0	1	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	1	0	1
16	0	1	0	1	1	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0	1
17	0	1	0	0	0	0	1	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	1	2	0	2
18	0	1	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1	1	0	1
19	0	1	1	0	0	0	1	0	(CA)	1	1	0	1	1	0	0	0	0	0	0	0	0	0	2	0	2
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	0	0	0	0	0	1	( )	1
21	0	0	1	1	0	0	1	1	0	0	0	1	0	0	0	1	0	0	0	0	1	1	0	2	1	2
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	1	0	1	1	0	1	1	( )	1
23	0	1	1	1	1	0	1	1	1	1	0	0	1	1	1	1	1	0	0	1	0	0	0	2	1	2
24	0	1	1	1	0	0	1	1	0	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	1	1
25	1	1	1	0	0	1	1	0	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	2	1	2
26	0	1	1	0	1	0	1	1	0	1	1	1	1	0	1	0	1	1	0	1	1	1	0	1	1	1
27	0	0	1	0	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	1	1	1	1	1	1
28	0	1	1	0	1	0	1	0	1	1	0	1	0	0	1	0	0	0	0	0	0	1	0	1	1	1
29	0	0	1	1	0	1	0	1	0	0	0	0	1	1	0	1	1	1	1	0	0	1	0	1	1	1
30	0	0	1	0	0	0	0	1	0	1	1	1	1	1	0	0	1	1	0	0	0	0	1	1	1	1
31	1	0	0	0	0	0	1	1	1	1	1	0	1	0	0	1	1	0	1	1	1	0	0	1	1	1
AV	0	1	1	0	1	0	1	1	0	1	1	1	1	1	0	1	1	0	0	0	0	1	0	2	1	
PK	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2		2

OXIDES OF NITROGEN
(UG/M3)

CB-TRACT
TRAILER AB23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5	2	0	0	0	0	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	0	0	0	0	0	0	0	0	0	0	2
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	2	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
11	0	0	0	0	0	2	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
18	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
19	2	0	0	2	2	0	2	0	(CA)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	0	0	0	0	0	0	( )	0
21	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	2	2	2	4	2	0	1	4
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	0	2	2	2	2	0	0	( )	2
23	2	2	2	0	2	0	0	2	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	2	1	2
24	2	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
25	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	2	0	0	2	0	0	2	2	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2
28	2	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2
29	2	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
30	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
31	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4
AV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PK	2	2	2	2	2	2	4	2	2	2	2	2	0	2	2	2	2	0	2	2	2	4	2	2		4

NITROGEN DIOXIDE
(UG/M3)

CB-TRACT
TRAILER AH23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5	0	0	0	0	0	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
11	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
19	2	0	0	2	2	0	0	0	(CA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	0	0	0	0	0	0	( )	0
21	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	2	0	2	2	0	0	2
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	0	2	0	0	2	0	0	( )	2
23	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
24	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
25	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
28	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
29	2	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
30	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
31	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
AV	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PK	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	2	0	2	2	0	2	2	0		2

OZONE
(UG/M3)

CB-TRACT
TRAILER AB23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	65	74	69	69	65	65	67	69	74	76	76	78	82	82	80	78	80	82	74	69	63	69	71	71	73	82
2	69	71	71	69	69	76	74	73	71	71	78	80	80	80	80	82	76	76	69	61	51	43	41	45	69	82
3	41	35	25	24	24	24	25	49	59	63	67	74	80	86	92	92	94	90	94	92	86	78	74	76	64	94
4	73	73	69	73	69	63	59	69	69	73	84	86	96	106	102	108	108	106	100	96	74	82	86	82	83	108
5	78	78	82	84	78	80	71	73	86	84	94	102	98	90	84	86	86	86	80	74	67	65	71	71	81	102
6	78	71	74	71	71	69	63	63	71	(IM)	(IM)	(IM)	(IM)	84	82	82	78	71	69	73	53	57	63	57	70	84
7	45	47	37	41	49	47	47	51	61	71	74	76	74	78	78	78	80	73	67	65	57	57	67	71	62	80
8	61	65	61	57	53	59	57	71	74	80	80	80	80	78	78	80	80	80	80	69	59	63	69	76	70	80
9	80	78	71	65	67	63	63	73	78	78	76	69	76	78	80	80	78	78	80	80	78	73	69	69	74	80
10	65	67	65	61	59	63	69	69	69	74	80	80	78	78	76	80	88	86	84	88	88	84	80	78	75	88
11	67	61	55	49	47	43	45	49	59	65	69	73	80	94	108	118	112	104	96	86	76	74	76	84	75	118
12	78	80	82	84	84	88	67	76	86	88	90	88	92	90	90	96	98	98	94	78	63	71	73	74	84	98
13	71	74	74	78	78	73	69	69	73	94	102	100	100	96	94	96	96	96	82	73	71	69	73	69	82	102
14	71	74	69	78	76	73	53	57	80	80	80	82	84	86	80	84	88	86	84	73	73	86	78	80	77	88
15	82	84	86	80	80	80	80	84	90	100	106	108	110	104	106	104	86	84	82	84	80	67	65	63	87	110
16	57	65	63	59	53	59	59	73	82	82	84	82	86	88	92	94	94	92	88	82	69	69	69	65	75	94
17	65	65	65	63	65	67	69	78	84	88	88	86	86	82	84	86	86	86	80	73	67	69	71	76	76	88
18	80	80	76	73	69	67	65	69	76	80	82	84	86	88	88	88	88	88	82	71	69	69	69	71	77	88
19	59	63	63	61	59	55	55	55	(CA)	( )	73	73	71	76	80	80	80	82	78	61	61	63	65	67	67	82
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	78	73	65	61	65	67	( )	78
21	61	61	57	53	57	51	53	55	67	71	73	78	78	80	80	73	67	67	67	63	47	33	43	47	62	80
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	73	61	47	43	41	39	53	( )	73
23	39	41	37	39	47	35	35	43	61	65	63	61	61	55	65	65	71	69	61	51	43	47	43	41	52	71
24	41	43	45	43	41	41	35	55	74	74	74	73	69	65	69	71	74	76	73	59	47	53	59	61	59	76
25	57	55	55	63	57	47	47	55	65	69	71	69	73	80	80	82	80	76	71	67	71	67	61	61	66	82
26	65	63	59	57	67	61	49	51	63	63	63	59	57	49	61	61	65	65	65	61	59	53	49	45	59	67
27	41	43	41	41	43	41	43	49	53	55	57	57	53	53	57	49	49	45	41	41	39	35	35	35	46	57
28	35	39	35	33	33	33	29	47	63	65	61	61	69	76	65	61	63	63	69	61	51	57	57	53	53	76
29	55	67	63	65	63	61	51	51	59	65	71	71	73	74	78	78	74	73	71	57	57	59	57	53	64	78
30	49	55	51	53	49	51	43	51	59	65	67	71	71	73	71	67	63	59	43	49	61	59	59	51	58	73
31	55	55	49	51	53	57	51	59	65	74	82	78	84	94	98	90	84	78	69	49	57	53	61	53	67	98
AV	61	63	60	60	59	58	55	61	70	75	77	78	80	81	82	82	82	80	75	68	63	62	63	63	69	
PK	82	84	86	84	84	88	80	84	90	100	106	108	110	106	108	118	112	106	100	96	88	86	86	84		118

CARBON MONOXIDE
(UG/M3)

CB-TRACT
TRAILER A823
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	30	20	20	20	20	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	20	20	20	31	30
2	20	20	20	20	20	20	30	20	20	20	20	30	20	20	20	20	20	20	30	30	30	30	30	30	27	30
3	30	30	30	30	30	30	50	50	50	50	50	30	30	30	30	30	30	30	30	30	30	30	30	30	37	50
4	30	30	30	30	30	30	30	30	30	30	30	30	20	20	20	20	20	20	20	20	20	20	20	20	29	30
5	20	30	30	30	30	30	30	20	10	10	10	0	(CA)	(CA)	(CA)	(CA)	20	30	30	30	30	30	30	30	28	30
6	30	30	30	30	30	30	30	30	30	10	10	10	0	20	30	30	30	50	50	50	50	50	50	50	33	50
7	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
8	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
9	50	50	50	50	50	50	50	50	50	50	50	60	60	60	60	60	60	60	60	60	60	60	60	60	52	60
10	60	60	60	60	60	50	50	60	60	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	60
11	50	50	50	50	50	50	50	30	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	30	50
12	50	50	50	50	50	50	50	70	50	50	50	50	50	50	50	50	30	30	30	50	50	50	50	50	46	70
13	50	50	50	50	50	50	50	30	30	20	20	20	20	20	30	20	20	20	20	20	20	20	20	20	31	50
14	30	30	30	50	30	30	60	50	50	30	30	50	30	30	30	30	30	30	30	50	30	30	30	30	38	60
15	30	30	30	30	30	30	50	50	50	50	50	50	50	30	30	30	50	50	50	50	50	50	50	50	42	50
16	50	50	50	50	50	50	50	50	50	50	50	50	50	50	30	30	30	30	30	30	30	30	30	30	41	50
17	50	30	30	30	30	50	50	50	50	50	30	30	30	30	30	30	30	30	30	30	30	30	30	30	37	50
18	50	30	30	50	50	50	50	50	30	20	20	20	20	20	20	20	20	20	20	20	20	20	30	30	31	50
19	50	50	50	50	50	50	60	60	(CA)	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	39	60
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	60	60	60	60	60	60	( )	60
21	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	70	70	70	70	70	70	70	61	70
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	70	70	70	70	70	70	70	( )	70
23	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	70
24	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	60	70	70	70	60	60	68	70
25	60	60	60	60	60	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	67	70
26	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	70
27	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	70
28	70	70	70	70	70	70	70	140	70	70	70	70	70	60	70	70	70	70	70	70	70	60	70	70	71	140
29	60	70	60	60	60	60	70	70	70	70	70	70	60	60	60	60	60	70	60	70	70	60	60	70	63	70
30	70	70	60	60	60	60	60	60	60	60	60	60	60	60	60	60	70	70	70	70	60	60	60	60	60	70
31	60	60	60	60	60	60	70	70	60	70	60	70	70	70	60	70	70	70	70	70	70	70	70	70	65	70
AV	49	48	48	48	48	49	52	54	48	46	45	46	46	46	46	46	46	48	48	49	49	47	48	48	47	
PK	70	70	70	70	70	70	70	140	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70		140

SULFUR DIOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	3	3	3	3	3	3	0	3	3	3	3	0	3	3	3	3	3	3	3	0	0	0	0	0	2	3
2	0	3	3	0	0	3	0	0	3	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	1	3
3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3	3	3	3	3	3	0	0	0	1	3
4	3	0	0	0	0	0	0	0	3	0	3	3	3	3	3	3	3	3	0	0	0	3	0	0	1	3
5	0	0	0	0	3	3	0	3	5	0	5	3	(CA)	(CA)	3	3	3	3	3	3	3	3	3	3	2	5
6	3	0	0	3	0	0	0	0	0	3	5	3	3	3	3	3	0	3	0	0	3	0	0	0	1	5
7	0	0	3	3	3	0	0	0	0	3	3	3	3	0	3	0	0	0	0	0	3	3	3	3	1	3
8	3	0	0	0	0	3	0	3	0	0	3	0	0	3	3	3	3	3	0	0	0	0	0	0	1	3
9	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
10	0	0	3	0	3	0	0	0	0	0	0	0	3	0	0	3	3	3	0	0	3	0	0	3	1	3
11	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	3	3	3	0	0	3	0	0	0	1	3
12	0	3	0	0	0	0	0	3	0	0	3	0	3	0	5	3	3	3	3	0	3	0	3	0	1	5
13	3	3	3	5	5	3	3	5	3	5	5	5	5	5	5	5	3	5	5	5	5	3	5	5	4	5
14	3	5	5	5	5	3	5	5	3	5	3	5	8	5	5	5	3	5	5	5	3	5	5	5	5	8
15	0	3	3	3	3	3	3	5	5	5	3	0	3	3	5	3	0	3	5	3	3	3	3	3	3	5
16	3	3	3	0	0	3	3	3	3	3	5	3	3	5	3	3	3	3	0	0	0	3	3	3	2	5
17	0	3	3	0	5	3	0	3	3	3	3	3	3	5	3	5	3	5	3	3	3	3	3	3	3	5
18	3	5	5	3	5	3	3	3	3	5	5	8	8	3	5	3	3	5	3	3	3	3	5	5	4	8
19	0	5	3	5	5	3	3	5	(CA)	5	5	5	5	5	5	5	5	5	3	0	3	5	3	5	4	5
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	3	0	3	3	3	0	( )	3
21	3	3	3	3	3	0	3	3	0	0	3	5	5	5	3	5	3	3	0	3	3	0	0	3	2	5
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	5	5	3	3	3	5	3	( )	5
23	5	3	5	3	3	3	5	3	3	5	3	3	3	5	5	5	5	5	3	3	5	3	5	3	4	5
24	3	3	5	3	3	5	3	3	5	3	3	5	5	5	5	5	3	5	5	3	5	3	5	5	4	5
25	5	3	3	5	5	3	5	3	5	5	5	3	5	8	5	5	5	3	3	3	3	3	5	5	4	8
26	5	5	5	8	8	8	5	5	5	5	8	8	5	8	5	8	8	5	8	8	5	5	5	8	6	8
27	8	5	5	5	5	5	3	8	8	5	10	8	8	8	5	8	5	8	3	5	5	5	5	5	6	10
28	5	8	5	5	3	5	5	16	5	5	8	5	5	8	8	5	8	5	8	5	8	3	5	3	6	16
29	8	5	5	5	5	5	5	5	5	5	5	8	5	10	8	8	8	8	8	8	5	8	5	5	6	10
30	5	5	5	5	8	5	3	5	5	5	5	5	5	5	3	5	3	3	3	3	3	3	3	0	4	8
31	5	3	5	5	3	3	5	5	5	3	5	5	3	5	5	3	3	3	3	0	0	3	5	5	4	5
AV	3	3	3	3	3	2	2	3	3	3	4	3	4	4	4	4	3	4	3	2	3	2	3	3	3	
PK	8	8	5	8	8	8	5	16	8	5	10	8	8	10	8	8	8	8	8	8	8	8	5	8		16

HYDROGEN SULFIDE
(UG/M3)

CB-TRACT
TRAILER AB23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	(CA)	4	0	0	0	0	0	0	0	0	0	0	0	0	4
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	1	1	1	4	3	3	3	3	3	3	1	1	1	1	1	1	1	4
8	0	1	1	1	1	1	1	1	1	3	3	3	4	4	4	6	4	4	6	4	4	4	3	3	3	6
9	3	3	3	1	3	3	3	3	4	4	4	4	4	3	4	3	4	3	4	3	3	3	3	3	3	4
10	1	1	1	1	3	3	1	3	3	3	3	4	4	4	4	4	4	3	3	4	1	3	3	3	3	4
11	3	1	3	3	1	1	3	3	3	4	3	4	4	4	3	4	3	4	3	3	3	1	1	1	3	4
12	0	1	1	3	3	1	3	4	4	6	6	6	6	6	6	6	6	6	4	4	3	3	1	1	4	6
13	3	1	1	1	1	1	3	1	1	1	3	3	3	3	3	3	3	3	3	3	1	0	0	0	2	3
14	1	1	1	1	1	0	3	3	3	3	4	6	4	4	4	3	3	4	4	4	3	1	1	3	3	6
15	3	1	3	1	3	3	3	1	3	3	3	3	4	3	4	3	3	3	3	3	3	1	1	1	3	4
16	0	0	0	0	1	0	0	1	1	3	1	1	3	3	3	3	3	3	3	3	3	3	1	1	2	3
17	1	1	1	1	1	1	1	1	3	3	3	3	3	3	4	3	4	4	4	3	3	3	3	1	2	4
18	0	1	1	3	1	1	1	1	1	1	3	3	3	3	3	3	1	1	0	0	0	0	0	0	1	3
19	0	0	0	0	0	0	0	0	(CA)	1	0	0	0	0	1	1	0	1	1	0	0	0	0	0	0	1
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	1	1	0	1	1	1	( )	1
21	1	1	0	0	0	1	0	3	3	3	3	4	3	4	4	4	3	3	3	1	0	1	1	1	2	4
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	1	1	0	0	0	0	0	( )	1
23	0	1	1	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	1	1	1	1	0	1	1
24	0	0	0	1	1	1	1	1	1	1	3	3	3	3	3	1	0	1	1	1	1	1	0	1	1	3
25	0	0	1	0	0	0	0	0	1	1	1	1	3	3	3	3	3	3	1	0	0	0	0	0	1	3
26	0	0	0	1	0	0	3	3	3	3	4	3	1	1	1	3	1	3	1	0	0	0	0	0	1	4
27	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
28	0	0	0	0	0	0	0	1	0	0	1	1	1	1	1	3	3	3	1	1	0	0	0	0	1	3
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AV	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	
PK	3	3	3	3	3	3	3	4	4	6	6	6	6	6	6	6	6	6	6	4	4	4	3	3		6

PARTICULATE DATA
UG/M3

C-B TRACT
JULY 1983
OCCIDENTAL OIL SHALE, INC.

			STATION		
DAY	AH20	AB23	AB26	AD42	AD56
1	( )	19.2	( )	( )	( )
5	( )	34.3	( )	( )	( )
9	( )	17.7	( )	( )	( )
13	( )	25.4	( )	( )	( )
17	( )	26	( )	( )	( )
21	( )	20.1	( )	( )	( )
25	( )	18.6	( )	( )	( )
29	( )	18.2	( )	( )	( )
AVE	( )	22.4	( )	( )	( )
GM	( )	21.9	( )	( )	( )
PEAK	( )	34.3	( )	( )	( )

WIND SPEED @ 10M
METERS/SEC

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	1	2	1	1	1	3	5	5	5	5	5	6	6	7	6	5	5	4	4	3	3	4	3	3	4	7
2	4	3	2	3	3	4	5	6	7	7	8	7	7	7	7	6	6	6	4	3	2	2	1	3	5	8
3	2	2	1	1	1	0	0	1	3	4	5	6	7	6	6	6	6	5	5	4	2	2	0	1	3	7
4	(CM)	1	1	(CM)	1	1	(CM)	1	1	1	1	1	2	1	1	1	1	2	1	2	1	0	0	(CM)	1	2
5	0	1	0	0	1	0	1	0	1	1	0	2	2	2	3	1	2	3	4	4	2	1	1	0	1	4
6	0	2	1	2	2	3	3	2	2	3	3	4	6	5	4	4	4	2	1	3	0	3	6	1	3	6
7	2	2	1	2	2	0	1	2	3	4	4	4	4	4	4	4	4	4	1	2	2	2	2	2	3	4
8	2	2	2	2	3	2	2	2	4	4	5	4	5	5	5	4	4	3	3	1	2	2	4	7	3	7
9	4	2	1	0	1	3	2	2	5	4	5	4	7	7	7	6	5	4	3	4	4	3	3	2	4	7
10	4	2	0	0	1	2	2	1	1	1	1	2	2	2	1	6	4	3	5	4	3	3	2	2	2	6
11	1	2	3	3	3	2	1	2	2	1	1	2	1	1	2	2	2	2	2	2	0	1	0	(CM)	2	3
12	1	0	(CM)	0	1	(CM)	(CM)	1	1	2	3	2	1	2	3	2	1	2	2	1	2	0	1	1	1	3
13	0	1	0	1	1	0	(CM)	0	1	0	1	2	1	0	1	2	2	2	2	2	3	0	1	0	1	3
14	1	1	1	0	1	1	1	1	3	4	4	4	5	5	7	3	3	3	2	3	4	4	4	4	3	7
15	5	5	6	5	6	6	6	6	5	6	5	5	8	8	9	8	4	5	4	4	1	1	2	2	5	9
16	2	0	0	0	1	1	1	4	4	5	7	6	7	6	7	6	5	6	5	4	3	3	2	1	4	7
17	3	4	4	4	4	3	3	4	6	7	7	7	7	6	6	5	5	5	4	3	3	2	1	3	4	7
18	4	4	3	4	4	2	2	4	(MT)	(MT)	(MT)	(MT)	5	4	4	4	3	3	4	4	4	4	6	6	4	6
19	3	2	1	3	1	3	2	3	5	4	4	2	1	1	3	3	3	3	3	2	2	1	1	0	2	5
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	2	4	2	2	1	1	( )	4
21	0	1	1	0	1	1	0	0	1	2	2	1	2	2	1	3	2	5	3	1	1	1	1	2	2	5
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	0	1	0	1	2	1	1	( )	2
23	1	1	0	1	1	1	1	1	3	2	4	4	3	3	4	5	5	3	2	0	3	3	1	2	2	5
24	2	2	2	2	2	1	1	1	2	1	0	1	1	3	3	1	1	1	1	2	2	(CM)	0	0	1	3
25	1	1	1	1	0	1	2	2	4	4	4	3	3	4	4	5	4	7	2	3	4	2	2	2	3	7
26	1	1	1	1	1	1	1	0	2	4	3	3	2	2	3	4	5	4	4	4	4	1	2	2	2	5
27	2	2	2	2	2	2	2	3	3	3	3	6	4	3	3	2	3	3	3	2	1	2	2	2	3	6
28	2	1	2	2	2	1	1	0	3	2	2	1	2	1	3	3	3	1	2	2	2	(CM)	0	1	2	3
29	2	2	1	2	2	2	1	1	1	1	2	1	1	3	2	2	0	1	1	1	3	4	3	1	2	4
30	3	4	2	1	2	1	1	2	2	0	1	1	2	1	1	4	2	2	2	4	5	4	3	2	2	5
31	2	3	3	3	3	3	2	3	2	3	4	3	3	2	3	3	3	2	1	0	1	2	1	2	2	4
AV	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	4	3	3	3	3	2	2	2	2	3	
PK	5	5	6	5	6	6	6	6	7	7	8	7	8	8	9	8	6	7	5	4	5	4	6	7		9

WIND SPEED @ 30M
METERS/SEC

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	2	4	2	3	4	6	8	8	8	7	7	8	8	9	8	7	7	7	5	5	6	7	6	6	6	9
2	6	5	4	4	7	8	8	8	10	10	10	9	9	9	9	8	8	9	6	5	3	2	2	4	7	10
3	3	3	2	1	2	1	0	2	4	6	7	8	9	8	9	8	8	8	8	6	3	3	0	0	5	9
4	1	1	2	1	1	0	0	1	1	2	2	2	2	2	2	1	2	2	2	3	0	0	(CM)	0	1	3
5	(CM)	1	0	1	1	1	1	0	1	1	0	3	3	3	4	2	3	3	5	6	4	0	1	2	2	6
6	0	1	1	3	4	5	4	3	2	4	4	4	8	8	6	5	6	3	2	5	1	5	9	3	4	9
7	4	4	1	4	4	1	2	3	4	5	5	6	6	5	4	4	6	7	2	4	3	3	4	4	4	7
8	4	4	3	3	4	4	3	3	5	6	7	6	6	7	6	6	5	4	4	2	2	3	7	10	5	10
9	5	4	1	0	1	4	3	3	8	6	7	5	9	10	9	8	7	5	4	5	6	5	5	4	5	10
10	5	4	1	1	3	3	2	2	1	1	2	3	3	2	1	8	5	4	7	5	4	5	3	3	3	8
11	3	3	4	3	4	3	2	3	2	1	2	2	2	2	3	3	3	3	3	3	1	0	0	0	2	4
12	0	0	0	0	0	0	(CM)	1	1	2	4	3	2	4	4	2	1	3	2	2	3	0	1	2	2	4
13	0	1	0	1	(CM)	(CM)	0	0	1	1	1	2	2	0	1	2	3	3	4	3	5	1	1	1	2	5
14	1	1	1	(CM)	1	2	1	1	4	4	5	6	7	7	10	4	4	4	2	4	7	8	6	7	4	10
15	8	8	9	8	9	9	8	8	7	8	7	7	11	12	13	12	6	7	5	6	2	1	2	2	7	13
16	3	1	1	1	1	1	1	5	6	7	9	8	9	8	9	8	8	8	7	6	6	5	4	1	5	9
17	4	5	6	6	6	4	5	6	8	9	10	10	10	8	8	7	7	8	5	4	5	3	2	5	6	10
18	7	7	5	5	6	4	3	5	(MT)	(MT)	(MT)	(MT)	7	5	5	5	4	4	5	6	5	6	9	9	6	9
19	5	4	3	4	3	4	3	4	7	5	4	3	2	2	4	3	4	4	4	4	3	2	2	1	3	7
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	3	6	3	4	3	2	( )	6
21	0	1	1	0	0	0	0	0	1	2	2	1	3	2	2	4	3	8	4	2	2	1	2	2	2	8
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	0	2	1	3	3	1	2	( )	3
23	2	2	1	1	2	1	3	2	4	3	5	5	4	4	6	6	7	4	3	1	4	4	1	3	3	7
24	3	3	2	3	2	1	2	1	2	1	0	1	2	4	3	2	2	1	2	2	3	0	0	0	2	4
25	1	1	1	2	1	3	3	3	6	5	5	4	4	5	5	7	6	10	2	4	6	2	3	4	4	10
26	2	2	2	2	2	2	1	1	3	5	4	4	3	3	4	6	7	5	5	6	7	2	3	3	4	7
27	4	3	3	3	3	3	3	4	4	4	4	8	5	4	4	3	4	4	4	4	2	3	3	2	4	8
28	2	2	3	3	3	1	2	1	4	3	3	2	3	2	4	4	4	2	3	3	4	1	1	0	2	4
29	2	2	1	3	4	3	2	1	1	2	2	2	1	4	3	2	0	1	1	2	4	6	5	2	2	6
30	4	7	4	2	2	1	1	2	2	1	1	2	2	2	2	5	3	3	4	7	8	5	4	4	3	8
31	4	4	4	5	4	4	4	3	3	4	5	4	4	3	4	4	4	2	1	0	2	4	2	3	3	5
AV	3	3	2	3	3	3	3	3	4	4	4	5	5	5	5	5	5	5	4	4	4	3	3	3	4	
PK	8	8	9	8	9	9	8	8	10	10	10	10	11	12	13	12	8	10	8	7	8	8	9	10		13

WIND SPEED @ 60M
METERS/SEC

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	1	3	4	5	7	8	10	8	8	8	7	9	9	10	9	8	8	7	6	6	7	8	7	7	7	10
2	7	6	6	7	8	10	9	10	11	11	11	10	10	10	10	9	9	10	6	5	4	2	2	5	8	11
3	4	4	2	1	3	2	1	2	4	6	7	8	10	8	9	9	8	8	8	7	3	4	1	0	5	10
4	2	1	2	1	1	1	1	1	1	2	2	2	3	2	3	1	2	2	2	4	1	1	0	0	2	4
5	1	0	0	1	1	2	1	1	1	1	0	3	3	3	4	2	4	4	5	7	6	1	2	2	2	7
6	2	1	2	2	4	4	4	3	3	5	4	5	8	8	6	5	6	4	3	6	1	5	11	4	4	11
7	4	6	3	5	5	2	3	4	4	6	6	6	6	6	5	5	7	8	3	4	4	2	4	5	5	8
8	5	5	4	3	4	4	4	4	6	6	7	6	7	7	7	6	6	5	4	3	2	3	8	12	5	12
9	7	4	2	1	1	5	4	4	8	7	7	6	10	10	10	9	7	7	4	6	7	5	6	4	6	10
10	6	4	2	2	4	4	3	2	1	2	2	3	3	2	1	8	6	4	7	6	5	5	4	4	4	8
11	4	3	4	4	4	4	2	3	2	2	2	3	3	2	3	3	3	3	3	4	2	1	1	0	3	4
12	0	0	1	1	1	0	0	1	1	3	4	4	2	4	4	2	2	4	3	3	3	1	1	2	2	4
13	1	0	1	0	0	1	1	(CM)	1	1	1	3	2	0	2	3	3	3	4	4	5	2	2	1	2	5
14	0	2	1	0	1	2	1	1	4	5	5	7	8	8	11	5	4	4	3	4	8	10	8	9	5	11
15	11	10	9	10	10	11	11	8	8	9	8	8	12	13	14	13	7	8	6	7	3	2	3	1	8	14
16	3	2	1	1	1	0	1	6	6	8	9	9	10	9	10	9	8	8	8	7	7	5	4	3	6	10
17	6	6	6	7	6	5	6	7	8	10	11	11	10	8	9	8	8	8	5	5	5	4	3	6	7	11
18	8	8	6	7	6	5	4	6	(MT)	(MT)	(MT)	(MT)	7	6	6	5	4	4	5	7	6	8	10	11	6	11
19	5	5	4	6	4	5	4	4	8	5	5	3	2	2	4	4	4	4	4	4	3	3	4	3	4	8
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	4	7	4	5	3	2	( )	7
21	1	2	1	1	0	0	(CM)	0	1	2	2	1	3	3	2	4	3	8	5	3	2	1	3	3	2	8
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	0	2	1	3	4	2	2	( )	4
23	3	3	1	1	2	2	4	3	4	3	5	6	5	5	6	7	7	5	4	1	5	5	2	3	4	7
24	3	2	3	3	2	2	2	2	3	2	0	2	2	4	4	2	2	2	2	2	2	2	1	0	2	4
25	1	(CM)	1	2	2	4	3	3	6	6	6	4	4	6	5	7	7	12	2	4	8	4	4	4	5	12
26	3	2	3	3	3	3	1	2	3	5	4	4	4	3	5	7	7	6	6	7	9	3	3	3	4	9
27	4	4	3	3	3	3	4	4	4	4	4	8	6	4	4	4	4	4	5	5	3	3	3	3	4	8
28	2	1	2	2	2	3	2	2	4	4	3	2	3	2	4	4	4	2	4	4	4	4	3	2	3	4
29	2	1	0	3	4	3	2	1	2	2	2	2	1	4	3	2	0	1	1	2	4	8	6	3	3	8
30	4	7	5	4	3	1	1	3	3	1	1	2	3	2	2	5	4	3	4	8	9	6	5	5	4	9
31	4	4	5	6	5	4	4	4	4	4	5	5	4	3	4	4	4	3	1	1	2	4	2	4	4	6
AV	4	4	3	3	3	3	3	4	4	5	5	5	5	5	6	6	5	5	4	5	4	4	4	4	4	
PK	11	10	9	10	10	11	11	10	11	11	11	11	12	13	14	13	9	12	8	8	9	10	11	12		14

WIND DIRECTION @ 10M
DEGREES

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	66	127	145	214	203	191	191	193	190	198	205	200	214	210	210	204	201	209	194	194	194	191	187	188	192
2	194	186	190	199	208	223	205	200	207	214	210	215	224	209	223	237	234	242	311	297	292	204	308	314	227
3	263	287	226	177	171	201	16	281	303	310	300	286	289	288	292	293	297	298	326	321	331	268	202	221	280
4	(CM)	225	215	(CM)	254	239	(CM)	283	310	340	11	323	345	342	323	309	356	349	27	28	209	234	174	(CM)	306
5	127	213	163	81	213	185	299	318	312	357	127	225	214	217	196	220	177	143	171	182	194	66	133	146	183
6	262	91	117	107	119	116	97	115	208	197	202	190	202	205	209	217	334	2	94	325	153	200	198	205	171
7	117	145	164	173	114	119	118	131	164	201	199	219	200	200	217	193	164	217	308	250	205	203	167	137	177
8	129	152	111	107	130	114	121	172	201	203	231	203	211	208	203	230	209	208	222	206	161	123	170	188	177
9	191	155	137	45	115	146	124	190	197	210	204	173	188	203	194	183	177	176	184	178	184	176	176	230	176
10	302	318	0	58	302	285	314	306	343	336	347	328	330	313	253	255	249	353	336	341	329	337	348	323	322
11	268	244	234	231	233	234	273	308	301	336	300	314	319	296	325	345	339	329	359	15	40	210	203	(CM)	295
12	210	23	(CM)	158	249	(CM)	(CM)	41	58	224	226	219	225	214	221	244	277	294	307	278	216	211	180	192	231
13	45	223	82	164	225	180	(CM)	6	28	306	336	233	256	59	109	128	102	35	57	124	174	259	227	341	111
14	96	165	218	180	132	187	76	55	199	206	218	218	217	220	304	322	266	245	231	184	198	193	199	194	202
15	194	185	176	188	181	183	180	180	195	197	210	197	197	231	246	235	319	342	354	42	77	237	235	225	207
16	222	192	107	189	217	212	87	169	166	202	198	205	214	210	215	213	219	204	205	193	204	194	157	71	192
17	157	153	150	152	153	149	161	167	180	183	201	208	205	209	208	213	213	213	208	200	201	206	188	173	186
18	181	185	165	169	172	169	135	186	(MT)	(MT)	(MT)	(MT)	210	209	217	227	217	238	155	127	131	131	202	220	183
19	176	145	156	159	144	137	118	138	202	203	198	204	261	227	256	235	217	256	248	212	215	135	199	192	193
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	65	112	146	144	145	125	( )
21	180	168	218	294	199	221	11	319	335	305	349	347	347	334	337	290	265	99	105	109	99	168	152	126	292
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	45	187	160	114	137	177	163	( )
23	126	158	141	109	130	144	180	188	202	191	240	161	154	166	175	158	153	198	185	225	159	156	79	136	163
24	124	144	128	123	118	114	94	196	196	152	243	65	81	107	139	193	209	175	122	159	205	(CM)	101	207	146
25	167	111	127	221	157	121	112	159	199	204	213	218	197	227	231	239	180	169	60	119	167	162	146	125	170
26	172	138	112	125	166	130	78	120	231	215	227	231	317	93	231	215	205	201	202	183	178	112	99	102	167
27	91	98	91	86	106	138	152	182	213	213	217	218	213	340	281	185	139	145	179	153	96	106	117	111	148
28	99	118	108	109	121	110	100	146	210	214	208	175	311	285	138	143	113	100	215	206	201	(CM)	84	84	143
29	107	127	107	117	141	140	121	70	56	52	356	335	253	230	224	243	199	223	310	213	148	135	145	117	146
30	137	169	144	128	114	191	102	131	117	279	3	356	346	2	342	169	176	149	139	147	139	120	118	137	130
31	147	134	152	124	138	160	171	198	202	209	223	207	212	225	211	295	359	65	214	200	143	166	126	131	176
PV	157	160	148	147	164	166	123	172	210	225	233	225	236	231	230	226	217	212	202	184	172	174	164	163	187

WIND DIRECTION @ 30M
DEGREES

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	31	117	172	198	181	188	188	191	188	197	204	199	212	209	208	202	199	207	196	196	198	191	185	184	192
2	187	189	205	207	217	223	206	199	206	211	209	214	221	206	221	236	232	241	310	299	297	207	310	314	228
3	264	286	239	178	166	184	315	275	302	310	297	284	285	286	290	290	294	295	323	319	334	297	16	253	287
4	43	261	234	232	278	264	259	281	311	342	8	327	341	345	321	297	359	346	25	26	100	80	(CM)	241	320
5	(CM)	253	191	101	186	156	289	315	308	357	140	222	213	215	193	212	178	143	170	175	180	37	168	170	191
6	188	97	147	118	116	109	97	114	206	195	201	189	201	203	207	216	332	359	88	325	53	190	197	210	165
7	109	139	156	179	124	148	122	133	160	199	197	216	200	199	216	191	160	216	296	257	208	178	161	127	176
8	122	145	122	110	123	125	134	173	200	202	229	201	209	205	202	226	208	207	219	202	166	117	171	187	177
9	191	156	146	94	121	138	125	190	195	208	202	172	186	201	193	182	176	175	184	176	182	176	175	225	175
10	301	315	335	24	305	289	313	306	335	335	341	325	326	310	253	253	248	350	333	339	332	337	349	329	320
11	306	268	255	251	252	251	273	302	302	337	304	311	315	295	320	338	334	327	358	12	34	122	90	35	314
12	216	328	319	120	284	330	(CM)	55	56	221	225	217	227	215	219	243	275	292	304	300	228	191	178	195	246
13	60	254	51	157	(CM)	(CM)	194	8	37	298	331	232	254	97	109	132	102	35	55	103	155	151	208	348	98
14	101	131	217	(CM)	111	166	106	86	197	206	216	218	216	220	304	319	263	242	230	174	190	188	191	193	196
15	193	185	175	186	180	179	178	180	192	196	207	195	196	229	244	233	316	339	353	42	72	278	256	241	210
16	230	215	147	137	188	202	117	168	164	200	196	203	213	208	213	212	216	202	203	191	202	194	166	176	191
17	153	149	139	139	140	141	156	165	177	180	199	206	204	208	205	209	211	211	204	199	196	184	197	170	181
18	174	188	167	170	171	174	137	185	(MT)	(MT)	(MT)	(MT)	208	204	212	220	215	231	149	122	130	127	197	217	180
19	172	141	145	154	140	131	119	134	197	198	193	198	253	219	251	232	211	251	242	210	207	169	177	174	188
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	60	110	143	138	140	114	( )
21	112	138	216	343	234	287	9	318	331	302	349	343	345	331	327	285	265	91	98	104	100	180	143	132	340
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	21	197	161	113	136	185	169	( )
23	132	145	163	92	113	161	183	191	197	186	236	159	151	161	170	153	149	192	184	243	145	149	94	127	161
24	119	135	132	122	126	135	112	196	192	148	239	62	77	100	133	187	207	168	117	135	161	117	355	225	142
25	156	93	176	207	202	156	125	160	192	198	207	214	194	222	228	234	174	163	68	121	163	167	148	132	173
26	179	144	113	133	176	152	106	177	224	210	223	229	300	93	225	210	201	194	197	179	172	120	101	107	172
27	94	107	98	94	118	141	149	176	208	210	210	212	206	333	275	186	134	141	175	153	113	114	143	131	152
28	107	135	105	104	119	176	114	180	207	209	203	169	305	282	133	137	107	98	211	209	190	194	182	159	162
29	120	127	100	116	125	143	131	65	57	51	352	336	243	228	222	235	180	222	306	221	144	132	143	133	146
30	123	159	140	149	126	184	127	130	113	277	0	350	347	357	338	161	164	139	120	135	135	120	117	125	127
31	142	127	142	120	129	147	162	189	198	204	217	201	208	222	210	292	355	58	214	90	117	145	134	120	162
PV	146	159	159	142	159	170	145	177	205	222	230	222	233	226	227	223	213	211	200	172	156	157	163	172	185

WIND DIRECTION @ 60M
DEGREES

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	352	118	180	185	182	190	190	189	188	193	203	197	210	208	205	202	198	205	196	198	204	197	191	188	194
2	188	198	212	213	221	225	209	199	204	209	208	213	219	204	220	235	232	240	310	306	306	217	315	322	229
3	274	289	258	200	160	180	255	274	303	313	298	284	286	287	292	293	295	296	325	321	341	315	9	8	292
4	41	355	268	264	292	47	254	281	309	345	6	332	341	346	324	293	355	349	27	26	68	94	42	27	347
5	7	318	336	106	125	128	256	292	308	358	159	217	213	213	192	213	181	147	170	172	175	186	187	174	193
6	188	203	188	134	130	117	110	127	206	195	199	189	199	201	206	215	333	357	84	330	38	188	197	217	179
7	103	131	152	183	143	173	138	141	163	197	197	214	199	198	215	191	161	219	296	268	219	166	160	125	178
8	123	145	139	129	133	142	150	175	198	199	227	200	207	204	201	223	207	206	219	204	189	128	176	188	180
9	191	158	156	139	146	145	136	190	193	206	201	173	185	199	192	181	177	175	184	176	183	180	178	219	178
10	299	310	322	2	307	299	317	312	334	339	341	327	329	311	262	253	248	348	335	340	338	343	354	338	321
11	330	301	274	271	271	270	274	300	309	339	307	311	316	297	322	336	333	327	0	13	29	76	106	138	318
12	323	343	330	96	127	351	265	87	51	217	225	217	228	217	216	242	276	292	304	317	249	213	178	204	252
13	171	259	71	122	117	86	237	(CM)	54	287	332	234	254	114	108	136	99	38	56	95	143	161	201	289	128
14	170	115	191	207	122	168	135	144	196	206	216	217	216	221	303	321	266	243	227	176	192	184	192	197	198
15	194	189	183	187	183	177	178	181	190	196	207	194	195	229	242	232	317	340	356	44	67	312	290	270	214
16	252	249	214	135	157	186	162	171	166	197	195	203	211	207	212	211	215	199	201	193	204	199	178	191	196
17	159	158	148	144	146	148	158	166	177	180	197	204	203	207	203	207	211	209	202	205	201	178	191	167	182
18	173	191	172	176	177	178	151	185	(MT)	(MT)	(MT)	(MT)	208	205	212	219	215	229	151	128	138	135	197	219	183
19	173	145	143	159	148	138	129	142	197	197	191	195	250	217	249	228	210	248	241	218	209	174	171	174	189
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	61	111	149	145	146	121	( )
21	130	144	246	94	265	297	(CM)	355	331	305	351	345	345	331	328	283	263	92	99	107	112	176	145	151	346
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	311	213	235	111	136	186	172	( )
23	145	146	182	112	127	175	187	197	194	185	237	166	156	165	170	157	153	192	191	248	147	151	130	134	168
24	130	135	157	132	171	187	177	200	191	149	233	63	82	101	138	187	204	169	119	130	155	160	111	180	153
25	166	(CM)	182	192	197	175	150	167	191	195	206	214	195	221	226	233	176	163	91	135	166	177	158	150	180
26	188	161	132	161	187	178	160	194	222	209	223	229	291	103	225	209	199	194	197	180	173	142	114	131	183
27	113	128	123	121	145	152	155	178	206	210	208	208	202	332	277	198	140	147	177	160	141	138	174	171	167
28	153	176	117	121	132	196	156	199	207	208	203	172	304	284	139	141	111	104	210	215	193	183	188	189	175
29	155	156	79	115	126	157	148	69	65	49	352	344	247	227	221	229	184	215	322	237	150	135	148	160	157
30	127	159	147	169	155	163	168	142	119	279	0	355	353	356	336	159	158	138	113	131	138	132	128	135	136
31	153	141	155	132	135	157	164	187	197	205	216	201	208	220	211	290	355	57	211	73	125	148	153	132	168
PV	162	170	174	151	159	168	177	183	203	220	229	221	232	224	226	222	213	214	197	182	160	164	165	174	190

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
10 METER LEVEL

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	66	127	145	214	203	191	191	193	190	198	205	200	214	210	210	204	201	209	194	194	194	191	187	188	198	3.8
2	194	186	190	199	208	223	205	200	207	214	210	215	224	209	223	237	234	242	311	297	292	204	308	314	223	4.1
3	263	287	226	177	171	201	16	281	303	310	300	286	289	288	292	293	297	298	326	321	331	268	202	221	294	2.9
4	***	225	215	***	254	239	***	283	310	340	11	323	345	342	323	309	356	349	27	28	209	234	174	***	322	0.7
5	127	213	163	81	213	185	299	318	312	357	127	225	214	217	196	220	177	143	171	182	194	66	133	146	189	1.0
6	262	91	117	107	119	116	97	115	208	197	202	190	202	205	209	217	334	2	94	325	153	200	198	205	188	1.4
7	117	145	164	173	114	119	118	131	164	201	199	219	200	200	217	193	164	217	308	250	205	203	167	137	186	2.2
8	129	152	111	107	130	114	121	172	201	203	231	203	211	208	203	230	209	208	222	206	161	123	170	188	189	2.7
9	191	155	137	45	115	146	124	190	197	210	204	173	188	203	194	183	177	176	184	178	184	176	176	230	185	3.5
10	302	318	0	58	302	285	314	306	343	336	347	328	330	313	253	255	249	353	336	341	329	337	348	323	316	1.9
11	268	244	234	231	233	234	273	308	301	336	300	314	319	296	325	345	339	329	359	15	40	210	203	***	292	1.1
12	210	23	***	158	249	***	***	41	58	224	226	219	225	214	221	244	277	294	307	278	216	211	180	192	234	1.0
13	45	223	82	164	225	180	***	6	28	306	336	233	256	59	109	128	102	35	57	124	174	259	227	341	138	0.3
14	96	165	218	180	132	187	76	55	199	206	218	218	217	220	304	322	266	245	231	184	198	193	199	194	218	2.0
15	194	185	176	188	181	183	180	180	195	197	210	197	197	231	246	235	319	342	354	42	77	237	235	225	208	3.5
16	222	192	107	189	217	212	87	169	166	202	198	205	214	210	215	213	219	204	205	193	204	194	157	71	202	3.4
17	157	153	150	152	153	149	161	167	180	183	201	208	205	209	208	213	213	213	208	200	201	206	188	173	190	4.0
18	181	185	165	169	172	169	135	186	***	***	***	***	210	209	217	227	217	238	155	127	131	131	202	220	185	3.3
19	176	145	156	159	144	137	118	138	202	203	198	204	261	227	256	235	217	256	248	212	215	135	199	192	197	1.8
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	65	112	146	144	145	125	****	****
21	180	168	218	294	199	221	11	319	335	305	349	347	347	334	337	290	265	99	105	109	99	168	152	126	38	0.1
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	45	187	160	114	137	177	163	****	****
23	126	158	141	109	130	144	180	188	202	191	240	161	154	166	175	158	153	198	185	225	159	156	79	136	166	1.9
24	124	144	128	123	118	114	94	196	196	152	243	65	81	107	139	193	209	175	122	159	205	***	101	207	141	1.1
25	167	111	127	221	157	121	112	159	199	204	213	218	197	227	231	239	180	169	60	119	167	162	146	125	184	2.1
26	172	138	112	125	166	130	78	120	231	215	227	231	317	93	231	215	205	201	202	183	178	112	99	102	188	1.6
27	91	98	91	86	106	138	152	182	213	213	217	218	213	340	281	185	139	145	179	153	96	106	117	111	166	1.4
28	99	118	108	109	121	110	100	146	210	214	208	175	311	285	138	143	113	100	215	206	201	***	84	84	154	1.0
29	107	127	107	117	141	140	121	70	56	52	356	335	253	230	224	243	199	223	310	213	148	135	145	117	144	0.8
30	137	169	144	128	114	191	102	131	117	279	3	356	346	2	342	169	176	149	139	147	139	120	118	137	137	1.5
31	147	134	152	124	138	160	171	198	202	209	223	207	212	225	211	295	359	65	214	200	143	166	126	131	178	1.5
VD	167	163	154	153	161	167	148	178	200	210	221	216	221	221	227	226	216	214	212	176	177	167	170	175	197	
VV	1.2	1.4	1.3	1.3	1.4	1.4	1.3	1.5	2.2	2.4	2.6	2.6	2.7	2.6	2.8	2.8	1.8	1.3	0.6	0.9	1.7	1.5	1.4	1.2		1.6

TOTAL NUMBER OF OBSERVATIONS = 694

NOTE: **** = MISSING DATA

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
30 METER LEVEL

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	31	117	172	198	181	188	188	191	188	197	204	199	212	209	208	202	199	207	196	196	198	191	185	184	196	5.7
2	187	189	205	207	217	223	206	199	206	211	209	214	221	206	221	236	232	241	310	299	297	207	310	314	222	6.0
3	264	286	239	178	166	184	315	275	302	310	297	284	285	286	290	290	294	295	323	319	334	297	16	253	293	4.0
4	43	261	234	232	278	264	259	281	311	342	8	327	341	345	321	297	359	346	25	26	100	80	***	241	336	0.9
5	***	253	191	101	186	156	289	315	308	357	140	222	213	215	193	212	178	143	170	175	180	37	168	170	188	1.6
6	188	97	147	118	116	109	97	114	206	195	201	189	201	203	207	216	332	359	88	325	53	190	197	210	186	2.0
7	109	139	156	179	124	148	122	133	160	199	197	216	200	199	216	191	160	216	296	257	208	178	161	127	182	3.1
8	122	145	122	110	123	125	134	173	200	202	229	201	209	205	202	226	208	207	219	202	166	117	171	187	186	3.9
9	191	156	146	94	121	138	125	190	195	208	202	172	186	201	193	182	176	175	184	176	182	176	175	225	184	4.9
10	301	315	335	24	305	289	313	306	335	335	341	325	326	310	253	253	248	350	333	339	332	337	349	329	315	2.7
11	306	268	255	251	252	251	273	302	302	337	304	311	315	295	320	338	334	327	358	12	34	122	90	35	304	1.7
12	216	328	319	120	284	330	***	55	56	221	225	217	227	215	219	243	275	292	304	300	228	191	178	195	237	1.2
13	60	254	51	157	***	***	194	8	37	298	331	232	254	97	109	132	102	35	55	103	155	151	208	348	110	0.5
14	101	131	217	***	111	166	106	86	197	206	216	218	216	220	304	319	263	242	230	174	190	188	191	193	213	3.0
15	193	185	175	186	180	179	178	180	192	196	207	195	196	229	244	233	316	339	353	42	72	278	256	241	206	5.0
16	230	215	147	137	188	202	117	168	164	200	196	203	213	208	213	212	216	202	203	191	202	194	166	176	200	4.9
17	153	149	139	139	140	141	156	165	177	180	199	206	204	208	205	209	211	211	204	199	196	184	197	170	185	5.8
18	174	188	167	170	171	174	137	185	***	***	***	***	208	204	212	220	215	231	149	122	130	127	197	217	182	4.8
19	172	141	145	154	140	131	119	134	197	198	193	198	253	219	251	232	211	251	242	210	207	169	177	174	188	2.7
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	60	110	143	138	140	114	****	****
21	112	138	216	343	234	287	9	318	331	302	349	343	345	331	327	285	265	91	98	104	100	180	143	132	44	0.3
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	21	197	161	113	136	185	169	****	****
23	132	145	163	92	113	161	183	191	197	186	236	159	151	161	170	153	149	192	184	243	145	149	94	127	163	2.9
24	119	135	132	122	126	135	112	196	192	148	239	62	77	100	133	187	207	168	117	135	161	117	355	225	135	1.5
25	156	93	176	207	202	156	125	160	192	198	207	214	194	222	228	234	174	163	68	121	163	167	148	132	181	3.1
26	179	144	113	133	176	152	106	177	224	210	223	229	300	93	225	210	201	194	197	179	172	120	101	107	185	2.6
27	94	107	98	94	118	141	149	176	208	210	210	212	206	333	275	186	134	141	175	153	113	114	143	131	163	2.2
28	107	135	105	104	119	176	114	180	207	209	203	169	305	282	133	137	107	98	211	209	190	194	182	159	162	1.6
29	120	127	100	116	125	143	131	65	57	51	352	336	243	228	222	235	180	222	306	221	144	132	143	133	145	1.2
30	123	159	140	149	126	184	127	130	113	277	0	350	347	357	338	161	164	139	120	135	135	120	117	125	132	2.4
31	142	127	142	120	129	147	162	189	198	204	217	201	208	222	210	292	355	58	214	90	117	145	134	120	165	2.1
VD	161	160	158	152	156	166	155	177	196	208	218	213	219	218	226	223	213	212	207	170	168	161	170	175	193	
VV	1.8	2.0	1.8	1.9	2.1	2.2	1.9	2.2	3.0	3.3	3.5	3.5	3.7	3.6	3.8	3.8	2.5	1.9	0.8	1.3	2.5	2.2	2.3	1.9		2.2

TOTAL NUMBER OF OBSERVATIONS = 699

NOTE: **** = MISSING DATA

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
60 METER LEVEL

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	352	118	180	185	182	190	190	189	188	193	203	197	210	208	205	202	198	205	196	198	204	197	191	188	196	6.8
2	188	198	212	213	221	225	209	199	204	209	208	213	219	204	220	235	232	240	310	306	306	217	315	322	223	6.8
3	274	289	258	200	160	180	255	274	303	313	298	284	286	287	292	293	295	296	325	321	341	315	9	8	296	4.4
4	41	355	268	264	292	47	254	281	309	345	6	332	341	346	324	293	355	349	27	26	68	94	42	27	349	1.2
5	7	318	336	106	125	128	256	292	308	358	159	217	213	213	192	213	181	147	170	172	175	186	187	174	185	1.7
6	188	203	188	134	130	117	110	127	206	195	199	189	199	201	206	215	333	357	84	330	38	188	197	217	191	2.4
7	103	131	152	183	143	173	138	141	163	197	197	214	199	198	215	191	161	219	296	268	219	166	160	125	182	3.6
8	123	145	139	129	133	142	150	175	198	199	227	200	207	204	201	223	207	206	219	204	189	128	176	188	186	4.6
9	191	158	156	139	146	145	136	190	193	206	201	173	185	199	192	181	177	175	184	176	183	180	178	219	184	5.7
10	299	310	322	2	307	299	317	312	334	339	341	327	329	311	262	253	248	348	335	340	338	343	354	338	317	3.2
11	330	301	274	271	271	270	274	300	309	339	307	311	316	297	322	336	333	327	0	13	29	76	106	138	314	2.0
12	323	343	330	96	127	351	265	87	51	217	225	217	228	217	216	242	276	292	304	317	249	213	178	204	241	1.2
13	171	259	71	122	117	86	237	***	54	287	332	234	254	114	108	136	99	38	56	95	143	161	201	289	121	0.7
14	170	115	191	207	122	168	135	144	196	206	216	217	216	221	303	321	266	243	227	176	192	184	192	197	213	3.4
15	194	189	183	187	183	177	178	181	190	196	207	194	195	229	242	232	317	340	356	44	67	312	290	270	206	5.4
16	252	249	214	135	157	186	162	171	166	197	195	203	211	207	212	211	215	199	201	193	204	199	178	191	200	5.5
17	159	158	148	144	146	148	158	166	177	180	197	204	203	207	203	207	211	209	202	205	201	178	191	167	185	6.5
18	173	191	172	176	177	178	151	185	***	***	***	***	208	205	212	219	215	229	151	128	138	135	197	219	184	5.6
19	173	145	143	159	148	138	129	142	197	197	191	195	250	217	249	228	210	248	241	218	209	174	171	174	186	3.3
20	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	61	111	149	145	146	121	****	****
21	130	144	246	94	265	297	***	355	331	305	351	345	345	331	328	283	263	92	99	107	112	176	145	151	75	0.4
22	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	311	213	235	111	136	186	172	****	****
23	145	146	182	112	127	175	187	197	194	185	237	166	156	165	170	157	153	192	191	248	147	151	130	134	169	3.4
24	130	135	157	132	171	187	177	200	191	149	233	63	82	101	138	187	204	169	119	130	155	160	111	180	147	1.7
25	166	***	182	192	197	175	150	167	191	195	206	214	195	221	226	233	176	163	91	135	166	177	158	150	184	4.0
26	188	161	132	161	187	178	160	194	222	209	223	229	291	103	225	209	199	194	197	180	173	142	114	131	189	3.4
27	113	128	123	121	145	152	155	178	206	210	208	208	202	332	277	198	140	147	177	160	141	138	174	171	174	2.9
28	153	176	117	121	132	196	156	199	207	208	203	172	304	284	139	141	111	104	210	215	193	183	188	189	178	2.0
29	155	156	79	115	126	157	148	69	65	49	352	344	247	227	221	229	184	215	322	237	150	135	148	160	155	1.4
30	127	159	147	169	155	163	168	142	119	279	0	355	353	356	336	159	158	138	113	131	138	132	128	135	137	2.8
31	153	141	155	132	135	157	164	187	197	205	216	201	208	220	211	290	355	57	211	73	125	148	153	132	169	2.5
VD	171	166	171	164	166	174	171	181	196	206	217	212	217	217	225	222	214	209	206	172	170	164	175	182	194	
VV	2.1	2.4	2.1	2.4	2.5	2.6	2.6	2.8	3.3	3.5	3.7	3.9	4.0	3.9	4.2	4.1	2.7	2.1	1.0	1.4	2.8	2.9	3.0	2.6		2.6

TOTAL NUMBER OF OBSERVATIONS = 702

NOTE: **** = MISSING DATA

SIGMA HORIZ. WIND DIR. @ 10M
DEGREES

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	10	8	18	17	32	10	7	8	11	11	15	12	13	12	12	12	10	11	9	4	4	4	4	4	11	32
2	4	3	6	5	6	8	8	9	11	10	11	12	13	13	12	12	12	10	11	7	11	10	13	9	9	13
3	8	6	7	12	9	40	23	16	19	17	14	13	12	13	13	14	11	11	10	9	7	8	12	13	13	40
4	(CM)	6	7	(CM)	18	11	(CM)	27	35	32	25	34	28	32	40	35	24	19	11	7	10	21	18	(CM)	22	40
5	30	15	15	21	11	22	13	19	16	33	49	30	29	25	26	42	25	17	5	4	9	10	17	30	21	49
6	25	13	8	6	4	6	7	17	26	14	19	20	13	14	14	13	10	12	14	9	19	12	10	22	14	26
7	8	10	18	11	18	25	22	10	14	14	12	13	14	15	16	15	11	11	14	8	8	13	13	9	13	25
8	9	6	12	5	6	11	10	14	11	10	13	14	13	13	15	13	14	15	8	6	5	5	11	9	10	15
9	11	16	20	12	21	5	9	18	11	14	14	12	12	12	12	12	10	10	15	10	6	5	17	11	12	21
10	7	7	18	20	13	5	13	24	37	30	34	23	27	27	27	11	14	16	8	7	7	9	8	8	17	37
11	10	5	4	3	4	4	14	10	24	30	36	34	37	32	30	26	34	17	8	5	16	12	13	(CM)	18	37
12	13	18	(CM)	12	18	(CM)	(CM)	15	24	24	30	34	50	29	24	27	27	21	16	10	3	18	8	17	21	50
13	13	18	14	7	18	20	(CM)	24	20	34	41	33	43	41	30	32	25	20	8	7	4	39	15	14	23	43
14	7	12	14	20	9	15	10	21	16	13	16	16	15	15	10	18	28	13	9	5	5	6	6	6	13	28
15	7	6	5	7	6	6	6	9	12	11	18	14	12	12	12	11	15	9	8	10	15	10	6	5	10	18
16	5	21	16	26	9	15	11	13	12	14	13	15	13	15	13	15	14	12	11	6	4	5	5	18	13	26
17	18	3	5	6	7	7	8	10	10	12	13	12	15	15	15	15	13	11	10	6	4	11	14	12	11	18
18	4	5	5	3	4	11	8	14	(MT)	(MT)	(MT)	(MT)	18	21	19	16	20	15	15	9	7	7	10	8	11	21
19	13	19	24	11	14	5	10	12	13	25	13	20	17	49	26	19	15	16	7	4	2	21	13	11	16	49
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	7	8	8	7	9	4	( )	9
21	6	11	3	13	4	4	10	22	24	22	30	42	23	21	39	22	12	9	7	7	10	8	11	7	15	42
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	7	10	15	6	4	8	3	( )	15
23	4	5	11	3	4	5	5	15	9	15	12	8	13	11	13	10	11	11	10	12	6	6	11	8	9	15
24	5	5	4	5	4	11	6	12	15	22	40	22	16	8	11	23	20	21	8	5	6	(CM)	23	13	13	40
25	9	7	13	7	15	19	11	22	12	12	11	17	22	15	18	15	11	9	19	10	8	12	6	7	13	22
26	17	7	7	8	15	21	7	28	25	12	15	16	26	17	24	12	10	10	8	6	8	16	6	8	14	28
27	7	7	7	12	16	7	10	11	11	15	13	11	10	9	10	9	10	9	7	10	11	6	6	7	10	16
28	7	9	6	5	4	14	3	15	11	18	23	37	24	31	16	9	11	16	15	3	3	(CM)	15	7	13	37
29	3	4	6	6	4	4	5	8	22	27	18	33	33	31	26	33	26	29	6	5	10	6	11	18	16	33
30	5	5	9	9	4	12	15	13	17	27	26	33	24	33	14	12	14	7	4	6	7	6	5	8	13	33
31	11	4	4	5	4	4	4	10	9	15	12	13	23	27	19	14	9	6	16	4	10	6	7	5	10	27
AV	10	9	10	10	10	12	10	15	17	19	21	21	21	21	19	18	16	13	10	7	8	10	11	10	14	
PK	30	21	24	26	32	40	23	28	37	34	49	42	50	49	40	42	34	29	19	15	19	39	23	30		50

SIGMA HORIZ. WIND DIR. @ 30M
DEGREES

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	11	8	10	10	9	7	6	8	10	10	14	11	12	11	11	11	9	10	8	3	3	3	2	3	8	14
2	3	3	4	4	4	5	6	8	10	9	9	10	11	12	10	10	11	9	10	6	9	13	13	8	8	13
3	7	5	6	6	7	24	18	14	18	15	12	11	11	11	12	12	9	11	8	8	7	7	13	28	12	28
4	14	14	7	20	9	11	34	24	35	28	24	29	26	28	33	30	25	18	10	4	19	16	(CM)	13	20	35
5	(CM)	15	16	4	15	11	12	22	14	31	44	29	27	22	23	36	22	15	4	2	12	20	15	12	18	44
6	18	23	16	8	4	3	5	13	21	12	15	17	11	11	14	12	9	12	15	8	18	10	8	20	13	23
7	7	7	14	8	15	29	16	9	13	12	11	11	13	14	14	14	10	9	14	8	5	10	6	7	12	29
8	5	7	9	5	3	9	10	13	10	9	11	11	11	13	13	11	12	12	7	4	4	7	10	8	9	13
9	10	22	15	15	33	4	7	16	9	11	12	10	10	10	10	11	10	9	13	9	5	5	14	10	12	33
10	6	5	14	13	9	4	11	24	31	38	30	19	25	24	27	10	12	15	6	6	6	8	8	7	15	38
11	8	4	4	4	4	4	12	10	19	29	36	32	34	31	27	23	28	18	8	4	12	21	17	14	17	36
12	18	9	13	17	13	9	(CM)	16	27	21	25	30	44	24	20	22	23	15	14	11	4	16	8	10	18	44
13	20	20	13	18	(CM)	(CM)	15	39	21	30	33	28	36	41	23	27	19	21	8	5	2	16	17	9	21	41
14	9	15	13	(CM)	7	13	13	15	15	12	14	15	13	14	8	16	20	11	9	2	3	3	5	5	11	20
15	5	4	3	4	4	5	5	8	10	11	16	13	10	11	9	9	14	7	7	8	14	13	7	6	8	16
16	7	12	17	11	10	10	11	11	10	13	11	13	12	14	11	13	13	11	9	5	2	3	6	35	11	35
17	7	3	3	4	5	7	7	9	9	11	11	11	13	14	13	14	11	10	9	4	2	7	14	3	8	14
18	3	5	5	4	4	6	9	13	(MT)	(MT)	(MT)	(MT)	16	17	16	15	18	13	16	8	7	7	9	7	10	18
19	13	20	21	8	12	3	9	12	12	23	13	21	17	44	23	19	14	18	6	3	2	18	11	20	15	44
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	7	7	8	5	8	6	( )	8
21	10	7	14	12	13	11	12	26	30	20	25	34	20	19	34	21	10	8	7	8	11	9	10	8	16	34
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	14	9	13	5	4	9	6	( )	14
23	5	6	17	7	7	8	4	21	9	16	11	7	13	10	11	9	9	9	10	11	4	4	14	6	10	21
24	5	4	7	5	12	19	15	31	14	31	38	32	17	6	9	24	21	21	8	3	5	28	20	28	17	38
25	11	22	18	9	23	28	13	22	12	11	9	17	24	15	16	14	10	7	21	10	7	15	6	9	15	28
26	26	9	9	14	14	26	27	29	23	11	13	15	27	17	21	11	10	8	8	5	6	16	7	11	15	29
27	7	8	10	15	23	8	10	11	10	12	13	10	9	10	9	8	9	8	7	10	13	9	12	12	11	23
28	10	17	6	5	4	20	6	29	10	15	18	34	21	29	13	9	8	16	14	3	3	30	23	29	16	34
29	9	12	11	4	4	4	10	12	21	20	18	30	32	26	26	28	37	28	11	5	8	5	8	19	16	37
30	3	3	7	11	6	12	14	13	17	26	25	32	23	36	13	11	11	7	3	4	6	6	6	7	13	36
31	9	4	3	5	3	3	3	9	9	15	10	12	20	22	20	14	8	5	26	8	5	6	8	5	10	26
AV	10	10	11	9	10	11	11	17	16	18	19	19	19	19	17	16	15	13	10	6	7	11	10	12	13	
PK	26	23	21	20	33	29	34	39	35	39	44	34	44	44	34	36	37	28	26	13	19	30	23	35		44

SIGMA HORIZ. WIND DIR. @ 60M
DEGREES

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	17	7	7	6	4	4	4	6	9	9	13	9	10	9	10	9	8	9	7	3	2	2	1	1	7	17
2	2	2	3	2	3	5	5	7	8	9	8	9	11	11	10	9	10	8	9	6	7	10	10	8	7	11
3	6	4	5	2	5	13	14	13	17	13	11	10	10	10	11	12	8	9	7	7	8	7	12	17	10	17
4	10	10	9	7	10	9	9	20	31	27	21	29	22	24	25	28	17	17	8	3	5	5	6	5	15	31
5	8	9	8	8	10	8	8	15	15	24	41	28	23	21	19	32	19	14	4	1	5	22	13	9	15	41
6	18	10	8	11	5	5	5	11	19	10	15	14	10	11	13	11	9	10	15	7	12	9	7	12	11	19
7	5	5	8	6	11	20	13	8	10	10	10	10	12	12	13	13	8	7	12	6	5	8	4	5	9	20
8	4	4	8	6	4	6	8	12	9	8	9	10	11	12	11	11	11	11	7	4	6	7	9	7	8	12
9	9	17	11	13	36	4	9	16	7	11	10	10	9	10	10	10	8	8	12	8	5	5	8	8	11	36
10	5	4	10	13	7	2	9	17	25	30	26	18	22	22	27	9	11	13	5	6	5	8	9	8	13	30
11	7	6	3	4	3	3	10	9	19	29	30	30	27	30	26	22	24	15	8	4	8	11	9	12	15	30
12	9	8	3	5	2	7	5	9	33	20	19	24	37	20	17	20	21	14	13	12	6	16	7	10	14	37
13	13	14	10	11	1	14	8	(CM)	19	27	29	25	25	37	24	25	20	18	7	5	3	10	8	9	16	37
14	10	6	6	7	4	5	16	22	13	11	12	13	13	13	7	14	16	11	8	2	2	1	2	3	9	22
15	3	2	3	2	3	3	4	7	9	10	16	12	10	11	8	8	13	6	6	7	8	9	11	10	8	16
16	6	8	5	4	4	5	10	8	8	11	10	11	11	12	10	12	11	10	8	4	1	2	5	16	8	16
17	3	3	4	4	4	7	5	7	7	10	10	10	12	13	12	13	11	8	8	3	2	4	9	1	7	13
18	2	4	4	4	4	6	9	12	(MT)	(MT)	(MT)	(MT)	13	15	15	15	18	11	13	8	7	7	8	6	9	18
19	12	16	14	4	7	3	7	11	11	18	11	17	15	45	24	17	12	17	5	1	1	5	5	8	12	45
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	7	6	6	4	8	5	( )	8
21	4	4	11	4	11	2	(CM)	24	21	16	21	36	17	19	26	19	11	6	6	6	9	6	7	8	13	36
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	9	8	12	2	3	7	5	( )	12
23	5	4	11	7	7	6	2	9	7	14	10	6	10	9	9	6	7	8	9	10	3	3	21	5	8	21
24	6	6	6	5	12	13	16	16	12	22	26	29	15	4	8	19	18	19	8	2	1	6	0	7	12	29
25	12	(CM)	9	8	12	20	12	18	9	11	9	15	22	14	14	12	8	5	22	9	5	10	5	7	12	22
26	23	9	11	13	12	18	20	24	19	9	13	14	21	17	21	9	9	7	6	4	4	19	12	17	14	24
27	12	11	19	20	24	9	9	10	10	11	12	8	8	10	8	6	7	7	5	6	17	10	7	12	11	24
28	19	17	22	15	8	16	11	20	9	13	15	31	21	23	12	7	6	17	14	3	2	7	9	8	14	31
29	8	10	11	6	2	3	6	9	18	17	16	32	33	19	20	24	20	19	4	4	5	4	6	15	13	33
30	3	1	4	4	6	8	17	12	15	24	26	29	19	40	12	9	10	7	3	4	5	6	6	5	11	40
31	8	4	4	6	3	4	2	7	8	13	9	11	16	21	16	13	8	3	27	3	4	5	7	7	9	27
AV	9	7	8	7	8	8	9	13	14	16	16	18	17	18	15	14	12	11	9	5	5	7	8	8	11	
PK	23	17	22.	20	36	20	20	24	33	30	41	36	37	45	27	32	24	19	27	12	17	22	21	17		45

TEMPERATURE ● 10M
DEGREE C

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	13	13	12	11	12	13	17	19	21	22	23	23	24	24	24	23	23	24	22	20	17	17	17	16	19	24
2	16	16	15	14	13	15	17	19	20	21	22	23	24	24	24	25	24	25	20	17	16	14	13	12	19	25
3	11	9	9	9	9	10	11	15	17	18	19	21	21	22	23	23	23	22	21	18	15	13	11	11	16	23
4	8	7	7	6	5	4	7	12	14	17	19	21	23	24	24	25	25	24	23	21	16	14	13	12	16	25
5	9	9	8	8	8	9	11	15	19	23	26	28	28	29	29	30	30	29	27	23	21	19	17	17	20	30
6	17	16	17	16	16	17	18	23	27	28	29	31	31	31	31	30	28	23	22	19	18	17	14	13	22	31
7	12	12	12	13	14	14	16	18	21	23	26	27	27	28	28	29	27	18	22	19	18	16	16	17	20	29
8	16	16	15	14	14	14	17	21	20	21	24	24	25	24	26	26	27	26	26	22	19	19	18	18	21	27
9	17	17	16	15	15	14	17	20	22	23	23	21	23	24	25	25	24	22	22	21	20	19	18	18	20	25
10	16	14	13	13	13	12	14	16	17	19	21	23	23	24	24	25	25	24	22	19	17	14	13	12	18	25
11	10	8	7	7	6	6	8	12	13	16	19	21	22	23	24	24	24	24	22	19	16	14	13	12	15	24
12	11	11	9	8	9	9	12	16	19	23	25	26	28	28	28	28	28	28	27	23	19	17	16	16	19	28
13	14	14	13	13	14	13	14	18	21	26	27	28	29	30	28	31	31	29	27	24	21	18	17	16	21	31
14	15	16	14	13	13	15	16	20	25	27	28	29	31	31	27	29	29	28	27	24	21	21	19	20	22	31
15	21	21	19	18	19	18	19	22	23	24	24	23	26	28	27	26	24	20	18	16	14	13	12	11	20	28
16	9	8	8	8	7	7	10	17	21	23	23	24	26	27	28	27	27	27	26	23	20	19	19	17	19	28
17	17	18	18	18	17	18	19	22	23	24	26	27	27	28	28	29	29	28	27	24	21	19	18	19	23	29
18	19	20	19	18	18	18	21	23	(MT)	(MT)	(MT)	(MT)	29	30	31	31	30	30	27	21	19	19	20	16	23	31
19	14	16	17	16	16	16	18	21	23	24	23	23	24	27	28	29	28	28	26	23	21	19	18	18	21	29
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	17	17	16	15	15	15	( )	17
21	14	14	13	12	12	12	15	18	22	23	26	27	28	27	29	22	18	16	15	14	14	13	13	13	18	29
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	13	13	14	13	13	14	14	( )	14
23	14	14	14	13	14	14	14	16	18	20	17	12	13	14	18	19	20	19	18	17	15	14	13	12	16	20
24	12	12	12	11	11	11	13	18	21	23	25	23	23	21	24	25	27	27	26	22	19	17	16	15	19	27
25	15	14	14	15	15	15	17	20	23	24	24	24	26	26	27	27	23	15	14	14	14	14	14	14	19	27
26	14	14	13	13	14	14	13	16	19	21	22	23	17	20	24	24	23	22	22	19	17	16	16	14	18	24
27	14	14	14	14	14	14	16	18	19	21	21	20	18	17	15	13	17	17	17	15	13	12	12	12	16	21
28	12	12	12	11	11	12	13	15	20	22	23	24	25	27	25	23	23	23	25	21	18	17	16	15	19	27
29	14	14	14	14	14	14	16	18	22	24	27	28	29	29	30	30	29	30	27	24	21	19	18	17	22	30
30	17	17	16	16	15	15	17	21	24	27	28	29	29	31	28	27	24	27	23	21	19	18	18	17	22	31
31	17	17	17	16	17	17	17	19	21	23	23	23	24	24	26	24	22	19	17	17	17	17	17	17	19	26
AV	14	14	13	13	13	13	15	18	21	23	24	24	25	26	26	26	25	24	22	20	18	16	16	15	19	
PK	21	21	19	18	19	18	21	23	27	28	29	31	31	31	31	31	31	30	27	24	21	21	20	20		31
MN	8	7	7	6	5	4	7	12	13	16	17	12	13	14	15	13	17	13	13	14	13	12	11	11		

MONTHLY MINIMUM = 4

TEMPERATURE @ 30M
DEGREE C

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	9	11	12	8	12	12	14	16	17	18	18	19	19	19	3	12	21	22	22	21	-1	5	4	15	14	22
2	9	8	11	8	11	11	12	13	14	15	16	17	18	18	19	19	19	21	17	13	12	9	8	11	14	21
3	9	9	9	10	10	11	9	-4	2	15	17	18	6	1	-4	4	14	13	12	9	13	10	12	11	9	18
4	9	7	8	5	7	5	8	12	13	16	18	20	21	23	23	24	24	23	22	21	17	15	13	12	15	24
5	10	10	9	9	10	9	12	15	18	21	24	26	26	27	28	28	29	28	27	22	18	19	18	18	19	29
6	18	17	18	18	17	18	19	18	26	23	22	16	13	14	26	25	15	8	15	21	19	18	14	12	18	26
7	13	12	13	13	14	13	13	18	20	22	23	22	22	20	24	28	25	20	1	8	16	17	17	17	17	28
8	17	16	15	14	15	15	17	19	19	20	22	22	23	23	24	24	25	25	24	23	21	19	19	17	20	25
9	17	17	16	14	15	15	17	17	17	17	17	16	18	18	18	16	14	13	13	12	11	11	14	18	15	18
10	14	13	13	13	12	12	8	16	16	18	20	21	22	23	23	23	23	22	21	18	16	15	14	12	17	23
11	9	8	8	5	4	4	6	12	13	15	17	19	21	22	23	23	23	23	21	19	17	15	13	13	15	23
12	12	11	11	9	8	7	12	16	19	22	23	24	26	26	26	26	27	27	26	23	22	19	18	18	19	27
13	17	16	15	14	14	13	16	12	9	9	7	6	8	21	26	29	29	28	27	24	14	8	12	17	16	29
14	16	17	15	14	14	17	17	20	24	26	27	27	28	28	27	27	28	26	26	24	23	22	21	21	22	28
15	21	20	20	19	20	19	19	22	23	23	23	22	24	25	25	24	23	20	18	16	14	11	5	7	19	25
16	11	9	8	9	7	7	11	17	21	22	22	23	24	25	26	26	26	26	26	24	23	22	21	18	19	26
17	18	19	19	19	19	19	20	22	22	23	24	25	26	27	27	28	27	27	27	24	23	22	19	21	23	28
18	21	21	20	19	19	19	21	23	(MT)	(MT)	(MT)	(MT)	27	28	28	28	29	28	26	21	20	20	20	17	23	29
19	14	17	18	17	16	17	18	21	23	23	22	22	23	26	27	27	27	27	25	23	23	21	20	19	21	27
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	17	17	16	16	16	15	( )	17
21	14	14	14	13	8	8	15	18	21	22	23	25	26	25	28	21	18	15	14	14	13	13	13	13	17	28
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	12	13	14	13	14	14	14	( )	14
23	14	14	14	14	14	14	13	15	17	19	16	11	12	13	17	19	19	18	17	17	16	15	14	13	15	19
24	13	11	8	7	3	12	13	17	19	22	23	22	22	19	19	22	24	26	24	22	21	18	17	16	18	26
25	17	16	16	17	17	17	17	17	17	18	18	18	20	19	21	20	17	14	14	14	14	13	14	14	17	21
26	14	14	13	13	14	14	14	15	17	18	19	21	16	17	19	19	19	18	17	16	18	17	16	16	16	21
27	16	15	15	15	15	15	16	18	18	19	16	15	15	16	14	7	12	16	17	15	13	13	13	13	15	19
28	12	7	8	12	12	11	13	16	19	20	21	23	24	26	24	22	22	23	24	22	21	18	17	16	18	26
29	16	16	16	15	15	16	16	13	17	19	21	22	23	23	25	28	28	28	27	25	23	20	19	18	20	28
30	18	19	17	17	16	16	18	19	22	24	27	27	27	28	27	26	25	26	24	23	20	19	18	18	22	28
31	18	17	17	17	16	16	17	18	19	22	21	21	22	19	17	17	14	19	18	17	17	18	17	17	18	22
AV	14	14	14	13	13	13	14	16	18	20	20	20	21	21	22	22	22	22	20	19	17	16	15	15	18	
PK	21	21	20	19	20	19	21	23	26	26	27	27	28	28	28	29	29	28	27	25	23	22	21	21		29
MN	9	7	8	5	3	4	6	-4	2	9	7	6	6	1	-4	4	12	8	1	8	-1	5	4	7		

MONTHLY MINIMUM = -4

TEMPERATURE @ 60M
DEGREE C

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	15	15	15	14	16	16	18	19	21	21	22	22	23	23	23	22	23	23	22	21	20	20	19	19	20	23
2	18	18	17	17	17	17	18	18	19	21	21	22	23	23	23	24	24	24	19	17	16	14	14	12	19	24
3	11	9	9	10	11	11	12	15	16	17	18	19	20	21	22	22	22	22	20	18	16	14	12	12	16	22
4	11	9	8	8	7	6	8	11	13	16	18	19	21	23	23	23	23	23	22	21	18	16	14	13	16	23
5	12	11	10	10	11	12	13	16	18	22	25	27	27	28	28	29	28	28	27	24	24	21	19	19	20	29
6	19	18	19	19	18	19	20	22	26	27	28	29	29	29	30	29	27	23	23	21	19	18	14	13	23	30
7	13	14	14	15	14	16	16	18	21	23	24	26	26	27	27	28	26	20	21	20	19	18	19	18	20	28
8	18	17	16	15	15	16	18	20	19	21	23	23	24	23	24	24	26	25	24	22	21	20	19	18	20	26
9	17	17	16	16	16	16	17	20	22	22	22	20	22	23	24	24	23	22	22	21	21	20	19	19	20	24
10	16	14	14	13	13	12	13	15	16	18	20	22	22	23	23	23	23	23	21	18	17	15	13	12	18	23
11	11	9	8	8	7	7	8	12	12	15	17	19	20	22	22	23	23	23	22	19	17	16	14	13	15	23
12	12	11	11	11	12	11	13	17	19	23	23	25	26	26	26	26	27	27	26	23	22	19	18	18	20	27
13	18	17	16	15	14	14	16	19	21	25	26	27	28	28	28	29	29	28	27	24	23	22	19	18	22	29
14	17	18	17	15	16	18	19	22	24	26	27	28	29	29	27	28	28	27	26	24	24	24	22	22	23	29
15	22	22	21	21	21	20	20	21	23	23	23	23	25	26	26	25	23	20	18	16	14	13	13	12	20	26
16	11	11	9	9	9	9	12	18	21	22	22	23	24	26	26	26	26	26	26	23	23	22	21	18	19	26
17	19	20	20	20	19	19	20	21	22	23	24	26	26	27	28	28	28	27	27	24	23	23	20	22	23	28
18	22	21	20	19	19	19	21	22	(MT)	(MT)	(MT)	(MT)	28	28	29	29	29	28	26	21	20	20	21	16	23	29
19	15	18	18	17	16	17	18	20	23	24	22	22	23	26	27	27	27	27	25	24	23	22	22	21	22	27
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	17	17	16	16	16	15	( )	17
21	14	15	14	13	13	12	15	18	21	23	24	26	27	26	28	21	18	16	15	14	13	14	14	14	18	28
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	13	13	14	14	14	14	14	( )	14
23	14	15	14	14	14	14	16	16	17	19	16	12	13	13	18	19	19	18	17	17	16	16	14	13	16	19
24	13	13	13	13	13	13	14	18	21	23	24	22	23	21	23	24	25	26	24	22	21	19	18	17	19	26
25	17	17	17	17	17	18	18	20	22	23	23	23	25	25	26	25	22	15	14	14	14	15	14	14	19	26
26	14	14	13	14	14	14	14	16	18	21	21	22	17	21	24	23	23	22	21	19	18	17	16	16	18	24
27	16	16	16	15	16	16	16	18	18	19	20	19	17	16	14	13	16	16	17	15	13	13	14	14	16	20
28	14	13	13	13	13	13	14	16	19	21	22	23	24	25	24	22	22	23	24	22	21	19	18	17	19	25
29	17	17	16	16	16	17	18	19	22	24	26	27	27	28	28	28	28	28	27	25	23	20	19	18	22	28
30	18	19	18	18	17	17	18	21	24	26	28	28	28	29	27	26	24	26	24	23	21	19	19	18	22	29
31	18	18	18	18	18	18	18	19	21	22	22	22	23	23	24	23	21	19	18	18	18	18	18	18	20	24
AV	16	15	15	15	15	15	16	18	20	22	23	23	24	24	25	25	24	23	22	20	19	18	17	16	20	
PK	22	22	21	21	21	20	21	22	26	27	28	29	29	29	30	29	29	28	27	25	24	24	22	22		30
MN	11	9	8	8	7	6	8	11	12	15	16	12	13	13	14	13	16	13	13	14	13	13	12	12		

MONTHLY MINIMUM = 6

DELTA TEMPERATURE 60-10M
DEGREE C*100

CB-TRACT
TRAILER AA23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	183	183	289	333	344	250	28	-50	-78	-72	-100	-94	-122	-106	-122	-72	-78	-94	-44	44	222	233	217	228	63	344
2	189	-422	-128	217	256	144	-6	-56	-83	-206	-161	-161	-211	-472	-189	-144	-111	-111	-117	-67	-33	0	-100	-44	-84	256
3	-33	-33	17	28	56	28	39	-128	-156	-144	-133	-133	-178	-206	-378	-706	-139	-128	-117	-328	-494	-28	56	61	-132	61
4	183	122	39	144	178	94	-33	-61	-122	-139	-100	-206	-178	-144	-150	-206	-144	-144	-106	-22	89	-44	-17	-44	-42	183
5	200	156	133	144	217	267	194	11	-72	-44	-117	-133	-133	-150	-128	-139	-122	-94	-56	94	294	144	206	172	44	294
6	211	278	239	272	250	250	128	-22	-72	-72	-94	-83	-106	-117	-128	-117	-94	44	33	72	89	139	56	-72	45	278
7	33	72	100	139	44	78	39	-28	-50	-50	-67	-128	-106	-117	-144	-111	-106	133	-39	6	106	194	233	144	16	233
8	150	94	61	89	122	72	11	-56	-61	-72	-133	-106	-122	-111	-106	-167	-117	-106	-117	-17	139	94	83	-33	-17	150
9	-22	-22	-17	0	56	78	-22	-56	-78	-94	-111	-78	-94	-106	-117	-106	-83	-33	-33	-17	17	67	111	83	-28	111
10	-17	-22	-6	-6	6	6	-83	-117	-133	-167	-139	-167	-150	-156	-128	-161	-161	-122	-83	-22	17	-6	-11	17	-75	17
11	61	78	94	106	128	111	-50	-78	-100	-122	-194	-189	-189	-189	-206	-144	-128	-117	-100	-33	106	133	-44	-11	-45	133
12	122	33	194	228	256	117	100	83	-22	-72	-167	-161	-167	-200	-178	-167	-172	-133	-117	0	206	239	144	228	16	256
13	278	161	183	150	39	83	172	61	-17	-61	-122	-172	-172	-161	-106	-167	-139	-117	-67	11	228	283	211	250	34	283
14	194	222	250	122	161	267	228	189	-50	-67	-133	-144	-144	-156	-111	-144	-161	-117	-83	44	322	272	244	183	58	322
15	72	117	178	183	117	122	94	-39	-106	-111	-94	-61	-111	-156	-161	-111	-106	-56	-44	-50	-17	6	83	44	-9	183
16	117	128	100	78	183	156	122	22	-67	-83	-94	-128	-133	-150	-139	-128	-117	-94	-78	22	250	317	200	144	26	317
17	256	150	172	211	222	156	11	-67	-89	-111	-117	-144	-144	-144	-122	-128	-122	-100	-89	33	278	333	200	267	38	333
18	194	89	67	83	100	144	-11	-67	(MT)	(MT)	(MT)	(MT)	-156	-167	-167	-167	-128	-156	-111	-50	17	6	-22	0	-25	194
19	117	156	94	44	44	56	-11	-56	-72	-89	-78	-67	-111	-150	-167	-167	-133	-128	-94	106	250	267	328	272	17	328
20	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	-72	-150	-761	-378	-461	-500	( )	-72
21	-433	-194	94	33	83	50	-56	-44	-117	-122	-172	-178	-200	-117	-172	-111	-50	-33	-44	-50	-28	17	94	111	-68	111
22	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	(PF)	-50	-17	6	-6	28	39	33	( )	39
23	22	83	56	72	44	61	50	-22	-56	-94	-128	-72	-117	-89	-67	-122	-144	-67	-61	-33	-83	-189	-733	-183	-78	83
24	-17	17	172	133	150	33	50	-67	-89	-67	-139	-133	-83	-61	-133	-100	-156	-156	-122	-11	172	211	211	122	-3	211
25	-67	22	56	150	194	194	22	-44	-228	-106	-139	-106	-133	-139	-167	-156	-100	-44	0	-17	11	6	11	22	-31	194
26	50	33	50	117	28	22	44	28	-83	-100	-117	-139	28	28	-117	-111	-89	-67	-67	0	44	17	33	78	-12	117
27	50	83	28	11	39	17	-39	-67	-67	-94	-144	-83	-78	-78	-72	-83	-111	-67	-50	-11	0	50	111	133	-22	133
28	111	94	89	128	144	144	94	67	-72	-106	-122	-139	-128	-150	-117	-61	-33	-33	-111	44	133	294	200	50	22	294
29	206	133	144	67	139	206	150	72	-22	-72	-106	-150	-183	-178	-156	-144	-94	-172	-83	11	194	44	67	17	4	206
30	83	106	139	117	172	-233	61	-39	-61	-78	-100	-144	-94	-178	-89	-83	-22	-72	67	117	50	50	72	150	0	172
31	111	111	139	106	28	28	22	-39	-111	-133	-317	-161	-150	-172	-178	-122	-83	-39	-267	-200	-289	-256	-383	11	-98	139
AV	90	70	104	121	131	103	47	-23	-83	-98	-130	-131	-133	-148	-145	-150	-112	-82	-74	-15	49	82	46	62	-13	
PK	278	278	289	333	344	267	228	189	-17	-44	-67	-61	28	28	-67	-61	-22	133	67	117	322	333	328	272		344
MN	-433	-422	-128	-6	6	-233	-83	-128	-228	-206	-317	-206	-211	-472	-378	-706	-172	-172	-267	-328	-761	-378	-733	-500		

MONTHLY MINIMUM = -761

PRECIPITATION
CM*100

CB TRACT
MRI AD28
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1																									
2																									
3																									
4																									
5																									
6																									
7							8					10	10												28
8																									
9																									
10																									
11																									
12																					3		3		5
13																									
14																									
15																		5							5
16																									
17																					3		3		5
18	3				3																				5
19	3	5																							8
20																									
21																8		13			3				23
22																	170	25	5	3					203
23											25	23	3	3											53
24																									
25																			20						20
26														33											33
27																	3								3
28																									
29																									
30																	13								13
31																	8		15						23
TL	5	5			3		8				25	33	13	36		8	193	43	41	3	8		5		427

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STABILITY CLASS USING DT/DZ                                                        CB-TRACT
DT 60-10M                                                                          TRAILER AA23
WS 10M                                                                             JULY  1983
                                                                                   OCCIDENTAL OIL SHALE, INC.

                                          HOUR (LOCAL STANDARD TIME)

DAY    1     2     3     4     5     6     7     8     9    10    11    12    13    14    15    16    17    18    19    20    21    22    23    24   AVE

  1    F     F     F     F     F     E     E     D     C     D     B     D     C     D     D     D     C     B     D     E     E     E     E     E     D
  2    E     B     B     F     E     E     E     D     D     D     D     D     D     D     D     D     D     D     B     D     D     E     A     D     D
  3    D     D     E     E     E     E     E     A     B     B     B     C     D     C     D     D     C     C     C     B     B     D     E     E     D
  4  (  )    F     E   (  )    F     F   (  )    D     A     A     A     A     A     A     A     A     A     A     A     E     F     D     E   (  )    C
  5    F     F     F     F     F     F     F     E     D     D     A     A     B     A     B     A     B     B     D     E     F     F     F     F     D
  6    F     F     F     F     F     F     F     E     D     D     B     C     C     C     B     B     B     E     E     E     F     E     D     D     D
  7    E     E     F     F     E     F     E     D     D     D     D     B     B     B     B     B     B     E     D     E     F     F     F     F     D
  8    F     F     E     F     F     E     E     D     D     D     B     B     B     C     B     B     B     B     B     E     F     F     E     D     D
  9    E     E     E     E     E     E     E     D     C     B     B     C     D     D     D     D     C     D     D     E     E     E     F     F     D
 10    E     E     E     E     E     E     C     A     A     A     A     B     A     A     A     C     B     B     C     E     E     E     E     E     C
 11    E     F     F     F     F     F     D     C     A     A     A     A     A     A     A     B     A     A     B     D     F     F     D   (  )    C
 12    F     E   (  )    F     F   (  ) (  )     F     E     D     B     B     A     B     B     A     A     B     A     E     F     F     F     F     D
 13    F     F     F     F     E     F   (  )    E     E     D     A     A     A     A     A     A     A     A     D     E     E     F     F     F     D
 14    F     F     F     F     F     F     F     F     D     D     B     B     C     B     D     B     B     B     C     E     E     E     E     E     D
 15    D     D     D     E     D     D     D     D     C     D     C     D     D     D     D     D     B     D     D     D     E     E     F     E     D
 16    F     F     F     F     F     F     F     E     D     C     D     D     D     D     D     C     C     C     C     E     E     F     F     F     E
 17    F     E     E     E     E     E     E     D     C     D     D     D     D     C     D     B     C     C     B     E     F     F     F     E     D
 18    E     E     E     E     E     F     E     D   (  ) (  ) (  ) (  )     B    •B     B     B     B     B     B     D     E     E     D     D     D
 19    E     F     F     E     E     E     E     D     D     B     C     D     A     A     B     B     B     B     B     F     F     F     F     F     D
 20  (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  )    D     B     A     B     A     A   (  )
 21    A     A     F     E     F     E     D     D     A     A     A     A     B     A     A     B     D     D     D     D     D     E     F     F     C
 22  (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  ) (  )    D     E     E     E     E     E   (  )
 23    E     F     E     E     E     E     E     E     D     B     B     D     B     B     D     B     B     D     D     D     C     B     A     A     D
 24    E     E     F     F     F     E     E     D     B     D     A     A     C     D     B     A     A     A     A     E     F   (  )    F     F     D
 25    D     E     E     F     F     F     E     D     B     B     B     B     B     B     B     B     B     D     E     E     E     E     E     E     D
 26    E     E     E     F     E     E     E     E     C     B     B     B     E     E     B     B     B     D     D     E     E     E     E     F     D
 27    E     F     E     E     E     E     D     D     D     B     B     C     C     C     D     C     B     D     D     E     E     E     F     F     D
 28    F     F     F     F     F     F     F     E     D     B     B     A     B     A     B     D     D     D     B     E     F   (  )    F     E     D
 29    F     F     F     E     F     F     F     E     E     D     A     A     A     B     B     A     B     A     C     E     F     E     E     E     D
 30    F     E     F     F     F     A     E     D     D     C     A     A     B     A     B     C     E     D     E     E     E     E     E     F     D
 31    F     F     F     E     E     E     E     D     B     B     B     B     B     A     B     B     C     D     A     A     A     B     A     E     C

AVE    E     E     E     F     E     E     E     D     C     C     B     B     B     B     C     B     B     C     C     E     E     E     E     E     D


 TOTAL OCCURRENCES:  A= 82     B=115     C= 44     D=135     E=177     F=141     HOURS MISSING= 50
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              NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

                                                                                   CATHEDRAL BLUFFS SHALE OIL
      NITRIC OXIDE (NO)

                             TRAILEP    AB23        PERIOD( 7/01/83 TO   7/31/83)

                                                          WIND DIRECTION
                    N   NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM    TOTAL
CONCENTRATION       1     1    1    1    1    1    2    1    2    2    2    1    1    1    2    1    1
     MAX
   UG/M**3
              ...............................................................................................
   GT    65. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  60. -  65. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  55. -  60. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  50. -  55. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  45. -  50. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  40. -  45. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  35. -  40. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  30. -  35. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  25. -  30. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  20. -  25. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  15. -  20. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  10. -  15. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
   5. -  10. :      0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
   LT     5. :     17     6   10   15   25   57   72   56   81  140   84   24   14   25   33   31   11 :    701
    TOTAL    :     17     6   10   15   25   57   72   56   81  140   84   24   14   25   33   31   11      701
              ...............................................................................................

    MEAN            0     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0        0
    CONC.

              0 = NO OBSERVATIONS
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NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

OXIDES OF NITROGEN (NOX)

CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(7/01/83 TO 7/31/83)

CONCENTRATION UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	1	0	0	0	1	1	1	3	3	1	1	0	1	1	1	1	0	
GT 65.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60. - 65.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55. - 60.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50. - 55.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45. - 50.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40. - 45.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35. - 40.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30. - 35.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25. - 30.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20. - 25.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15. - 20.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10. - 15.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5. - 10.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LT 5.	17	6	10	15	25	57	72	56	81	140	84	24	14	25	33	31	11	701
TOTAL	17	6	10	15	25	57	72	56	81	140	84	24	14	25	33	31	11	701
MEAN CONC.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

NITROGEN DIOXIDE (NO2) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(7/01/83 TO 7/31/83)

CONCENTRATION	WIND DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX UG/M**3	1	0	0	0	1	1	1	1	1	1	0	0	0	1	1	1	0	
GT 65.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60. - 65.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55. - 60.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50. - 55.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45. - 50.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40. - 45.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35. - 40.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30. - 35.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25. - 30.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20. - 25.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15. - 20.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10. - 15.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5. - 10.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LT 5.	17	6	10	15	25	57	72	56	81	140	84	24	14	25	33	31	11	701
TOTAL	17	6	10	15	25	57	72	56	81	140	84	24	14	25	33	31	11	701
MEAN CONC.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

OZONE (O3) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(7/01/83 TO 7/31/83)

CONCENTRATION	WIND DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX UG/M**3	107	99	96	96	84	96	96	84	88	109	103	105	98	98	107	117	88	
GT 140. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
130. - 140. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
120. - 130. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
110. - 120. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0 :	2
100. - 110. :	2	0	0	0	0	0	0	0	0	3	3	1	0	0	3	3	0 :	15
90. - 100. :	1	2	1	1	0	2	2	0	0	5	10	2	1	7	4	1	0 :	39
80. - 90. :	5	2	1	3	1	0	1	5	20	37	26	9	1	2	6	11	4 :	134
70. - 80. :	5	1	4	4	3	5	9	8	26	44	16	6	4	4	7	9	2 :	157
60. - 70. :	3	0	2	4	5	13	25	19	19	31	18	6	4	6	8	4	2 :	169
50. - 60. :	1	0	2	2	4	14	18	13	6	13	9	0	1	5	2	1	3 :	94
40. - 50. :	0	0	0	1	8	14	14	9	5	3	3	0	3	0	3	0	0 :	63
30. - 40. :	0	0	0	0	3	9	3	2	2	0	0	0	0	1	0	0	0 :	20
20. - 30. :	0	1	0	0	1	0	0	0	2	1	1	0	0	0	0	0	0 :	6
LT 20. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
TOTAL :	17	6	10	15	25	57	72	56	80	137	86	24	14	25	33	31	11	699
PERCENT	2.	1.	1.	2.	4.	8.	10.	8.	11.	20.	12.	3.	2.	4.	5.	4.	2.	100.

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

CARBON MONOXIDE (CO)　　　　　　CATHEDRAL BLUFFS SHALE OIL

TRAILER　A823　　　PERIOD(7/01/83 TO 7/31/83)

CONCENTRATION UG/M**3		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM		TOTAL
		WIND DIRECTION																		
MAX		68	45	68	68	68	68	137	68	68	68	68	68	68	68	68	68	68		
GT 1300.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
1200. -1300.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
1100. -1200.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
1000. -1100.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
900. -1000.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
800. - 900.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
700. - 800.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
600. - 700.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
500. - 600.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
400. - 500.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
300. - 400.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
200. - 300.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
100. - 200.	:	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	:	1
LT 100.	:	17	6	10	15	25	57	71	56	81	140	83	24	14	25	33	31	11	:	699
TOTAL	:	17	6	10	15	25	57	72	56	81	140	83	24	14	25	33	31	11		700
MEAN CONC.		45	32	50	50	60	57	54	55	48	43	44	42	42	40	39	43	41		47

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

SULFUR DIOXIDE (SO2) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(7/01/83 TO 7/31/83)

	WIND DIRECTION																	
CONCENTRATION UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	5	2	5	5	7	7	15	7	7	7	10	7	5	7	7	7	2	
GT 13. :	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0 :	1
12. - 13. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
11. - 12. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
10. - 11. :	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0 :	2
9. - 10. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
8. - 9. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
7. - 8. :	0	0	0	0	2	5	5	1	3	9	9	1	0	1	1	2	0 :	39
6. - 7. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
5. - 6. :	6	0	5	6	12	20	29	15	20	34	21	8	3	1	6	6	0 :	192
4. - 5. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
3. - 4. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
2. - 3. :	9	2	4	7	7	18	27	29	36	55	32	8	5	9	11	12	4 :	275
1. - 2. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 1. :	2	4	1	2	4	14	10	11	22	43	20	7	6	14	15	11	7 :	193
TOTAL :	17	6	10	15	25	57	72	56	81	141	84	24	14	25	33	31	11	702
MEAN CONC.	3	0	3	3	3	3	3	2	2	2	3	2	2	1	2	2	0	2

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

HYDROGEN SULFIDE (H2S) CATHEDRAL BLUFFS SHALE OIL

TRAILER AR23 PERIOD(7/01/83 TO 7/31/83)

CONCENTRATION UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	2	2	4	4	2	4	2	4	4	4	5	5	5	5	4	4	2	
GT 13. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
12. - 13. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
11. - 12. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
10. - 11. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
9. - 10. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
8. - 9. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
7. - 8. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
6. - 7. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
5. - 6. :	0	0	0	0	0	0	0	0	0	0	9	1	1	1	0	0	0 :	12
4. - 5. :	0	0	1	1	0	1	0	1	5	15	7	5	1	2	5	9	0 :	53
3. - 4. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
2. - 3. :	4	1	5	6	3	7	7	3	20	36	21	4	4	4	8	11	2 :	146
1. - 2. :	2	2	2	4	5	10	13	25	18	26	16	8	0	2	6	1	4 :	144
LT 1. :	10	3	2	4	17	39	51	27	38	64	32	6	8	16	13	10	5 :	345
TOTAL :	16	6	10	15	25	57	71	56	81	141	85	24	14	25	32	31	11	700
MEAN CONC.	0	0	2	1	0	0	0	0	1	1	1	2	1	1	1	2	1	1

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

10 METER LEVEL CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(7/01/83 TO 7/31/83)

WIND SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX METERS/SEC	3	1	4	2	5	4	4	4	7	8	8	8	2	6	7	5	0	
GT 11. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
8. - 11. :	0	0	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0 :	4
5. - 8. :	0	0	0	0	1	0	0	0	13	36	12	3	0	7	2	1	0 :	75
3. - 5. :	1	0	1	0	0	4	8	18	34	53	21	4	0	4	7	6	0 :	161
1. - 3. :	11	3	3	7	18	45	52	27	22	34	44	10	9	11	16	18	0 :	330
LT 1. :	5	3	6	8	6	8	12	11	12	18	7	6	5	3	8	6	0 :	124
TOTAL :	17	6	10	15	25	57	72	56	81	142	86	24	14	25	33	31	0	694
PERCENT	2.	1.	1.	2.	4.	8.	10.	8.	12.	20.	12.	3.	2.	4.	5.	4.	0.	100.

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

30 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23   PERIOD(7/01/83 TO 7/31/83)

WIND SPEED MAX METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
	4	3	5	3	7	6	7	9	10	10	12	12	4	9	10	7	0	
GT 11. :	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0 :	3
8. - 11. :	0	0	0	0	0	0	0	1	12	28	7	1	0	5	1	0	0 :	55
5. - 8. :	0	0	1	0	1	3	8	11	29	46	11	2	0	4	5	3	0 :	124
3. - 5. :	5	1	1	1	6	19	34	19	24	38	21	9	4	7	5	6	0 :	200
1. - 3. :	7	4	4	6	9	32	34	16	23	16	19	7	5	12	15	19	0 :	228
LT 1. :	5	2	7	2	10	5	2	8	10	4	5	7	6	3	6	7	0 :	89
TOTAL :	17	7	13	9	26	59	78	55	98	132	65	27	15	31	32	35	0	699
PERCENT	2.	1.	2.	1.	4.	8.	11.	8.	14.	19.	9.	4.	2.	4.	5.	5.	0.	100.

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

60 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(7/01/83 TO 7/31/83)

WIND SPEED METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX	5	3	6	3	8	6	8	11	11	11	12	14	4	10	8	8	0	
GT 11. :	0	0	0	0	0	0	0	1	2	3	2	1	0	0	0	0	0 :	9
8. - 11. :	0	0	0	0	1	0	1	0	19	37	9	2	0	8	1	1	0 :	79
5. - 8. :	1	0	1	0	0	2	12	20	28	50	13	2	0	2	4	6	0 :	141
3. - 5. :	4	2	1	1	3	9	36	28	27	26	22	4	9	8	8	7	0 :	195
1. - 3. :	12	2	5	7	5	15	26	25	29	17	10	11	7	8	18	19	0 :	216
LT 1. :	6	1	3	2	5	7	5	2	8	3	2	4	5	3	3	3	0 :	62
TOTAL :	23	5	10	10	14	33	80	76	113	136	58	24	21	29	34	36	0	702
PERCENT	3.	1.	1.	1.	2.	5.	11.	11.	16.	19.	8.	3.	3.	4.	5.	5.	0.	100.

0 = NO OBSERVATIONS

FIVE MAXIMUM SLIDING AVERAGE
UG/M**3

C-B TRACT
SITE AB23
JULY 1983
CATHEDRAL BLUFFS SHALE OIL CO.

COMPONENT	AVG. TIME	RANK	DAY	HOUR (BEG)	VALUE
SO2	3 HR				
		1	27	11	8.7
		2	28	6	8.7
		3	29	14	8.7
		4	26	4	7.9
		5	29	17	7.9
SO2	24 HR				
		1	26	2	6.5
		2	27	9	6.4
		3	29	1	6.4
		4	13	8	4.7
		5	24	18	4.6
CO	1 HR				
		1	28	8	140.0
		2	12	8	70.0
		3	21	18	70.0
		4	21	19	70.0
		5	21	20	70.0
CO	8 HR				
		1	28	1	80.0
		2	22	18	70.0
		3	23	2	70.0
		4	23	10	70.0
		5	23	18	70.0
O3	1 HR				
		1	11	16	117.7
		2	11	17	111.8
		3	15	13	109.9
		4	4	16	107.9
		5	4	17	107.9
PART	24 HR				
		1	5	1	34.3
		2	17	1	26.0
		3	13	1	25.4
		4	21	1	20.1
		5	1	1	19.2

DATA ACQUISITION INSTRUMENT EFFICIENCY
CATHEDRAL BLUFFS SHALE OIL COMPANY
A.Q. TRAILER AB23

JULY 1983

GASEOUS PARAMETERS	
NOX:	95 %
NO:	95
NO2:	95
O3:	95
CO:	95
SO2:	95
H2S:	95

PARTICULATES: 100 %

METEOROLOGICAL PARAMETERS	
WIND SPEED	
10 M:	95 %
30 M:	95
60 M:	95
WIND DIRECTION	
10 M:	95
30 M:	95
60 M:	95
SIGMA HORIZONTAL WIND DIRECTION	
10 M:	95
30 M:	95
60 M:	95
TEMPERATURE	
10 M:	95
30 M:	95
60 M:	95
DELTA TEMPERATURE:	95
RELATIVE HUMIDITY:	95
SOLAR RADIATION:	95
BAROMETRIC PRESSURE:	95
PRECIPITATION:	95

SEPTEMBER OCTOBER NOVEMBER

AUGUST

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NITRIC OXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	1	0	1	1	0	1	1	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	2	1	1	2	2	1	1	2	1	2
2	1	1	1	1	1	1	1	0	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2
3	0	1	1	1	1	0	1	1	1	1	1	1	0	0	1	0	0	1	1	1	1	1	0	1	1	1
4	0	0	1	0	0	1	1	1	1	1	0	0	0	1	1	1	1	1	0	1	0	0	0	1	1	1
5	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	1	1	0	1	0	0	1	1	0	1
6	0	1	0	1	1	0	0	1	0	1	0	1	1	0	0	1	0	0	1	0	1	0	0	2	1	2
7	0	0	1	1	0	1	0	0	0	0	0	0	1	0	1	1	0	1	1	0	0	1	0	1	1	1
8	0	1	0	0	1	0	1	0	0	1	0	1	1	1	0	1	1	0	1	1	0	1	0	1	1	1
9	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	2	0	2
10	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	0	2	1	2
11	1	1	1	1	1	1	1	0	1	1	0	0	1	1	1	0	1	0	0	0	0	1	1	1	1	1
12	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	1	1	1	1
13	1	1	1	1	0	1	1	1	0	1	1	1	0	0	0	0	1	0	1	0	1	1	1	1	1	1
14	0	1	0	0	1	0	0	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	0	1	1	1
15	1	1	0	1	0	0	0	1	1	0	0	0	1	0	1	1	1	0	1	0	1	0	0	1	1	1
16	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	1	1	1	1	1	0	1	1	2	1	2
17	0	1	0	1	0	1	1	0	0	1	0	1	0	1	0	1	0	0	1	1	0	0	0	1	1	1
18	0	1	1	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	1
19	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	1
20	0	1	1	0	1	1	1	1	0	1	0	0	1	1	0	1	0	1	0	1	0	1	0	1	1	1
21	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	1	1	1	0	1
22	0	0	0	1	0	0	0	1	1	0	1	0	1	0	0	0	0	1	0	0	0	0	0	1	0	1
23	0	0	1	0	1	0	0	1	1	0	1	1	0	0	1	0	0	0	1	0	0	0	0	1	0	1
24	0	1	0	1	1	1	1	0	1	1	0	0	0	0	1	0	0	0	1	0	1	0	0	1	1	1
25	0	1	1	1	1	1	0	1	0	1	1	0	0	1	1	1	1	1	0	0	1	0	0	1	1	1
26	0	0	0	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	2	1	2
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	1	1	1
28	0	1	1	1	1	0	2	1	0	0	0	1	0	0	1	1	1	1	1	0	1	1	0	1	1	2
29	0	1	1	1	1	1	1	(MT)	(MT)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2
30	0	1	1	1	1	1	1	0	1	1	1	(CA)	(CA)	(CA)	(CA)	(CA)	1	1	1	1	1	1	1	1	1	1
31	1	0	1	0	1	0	1	1	1	1	1	1	2	1	1	1	0	0	0	1	1	0	0	1	1	2
AV	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
PK	1	1	1	1	1	1	2	1	1	1	2	1	2	1	1	1	2	1	1	2	2	2	1	2		2

OXIDES OF NITROGEN
(UG/M3)

CB-TRACT
TRAILER AB23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	4	2	0	2	0	0	0	0	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	0	2	0	0	0	0	0	2	1	4
2	0	0	0	0	0	0	2	2	0	0	2	2	0	0	2	0	0	0	0	0	0	0	0	2	0	2
3	2	0	0	0	0	0	0	2	0	2	0	0	2	2	0	0	2	2	0	0	0	0	0	0	1	2
4	2	2	0	0	2	2	2	0	2	2	0	2	0	0	0	0	2	2	0	2	0	0	2	2	1	2
5	4	2	0	0	0	2	0	2	2	2	2	2	0	0	2	0	0	2	0	0	2	0	2	2	1	4
6	2	2	2	0	2	4	0	2	2	4	2	2	2	2	2	0	0	0	0	0	2	0	0	2	1	4
7	2	2	2	0	2	2	0	0	2	0	2	0	2	2	0	2	0	2	0	2	0	0	0	0	1	2
8	0	0	0	0	0	0	2	0	0	2	2	0	2	0	2	0	0	0	0	0	0	0	0	2	0	2
9	0	2	2	2	0	2	4	4	2	2	2	2	2	2	2	0	2	0	0	0	2	0	0	0	1	4
10	2	2	0	2	0	2	2	2	4	4	4	4	4	4	2	0	2	0	2	2	4	2	2	0	2	4
11	2	2	2	2	2	0	0	2	2	2	2	2	0	2	2	2	2	2	2	2	2	4	4	4	2	4
12	4	4	2	2	4	2	2	2	2	2	2	4	2	2	2	2	2	2	2	2	2	2	4	2	2	4
13	4	4	4	2	2	2	4	4	4	4	4	4	2	2	2	4	2	2	2	2	0	2	2	2	3	4
14	4	2	4	4	2	2	2	4	4	2	2	2	2	2	4	2	4	2	2	2	2	2	2	0	2	4
15	4	2	2	2	2	0	2	2	2	4	4	2	4	2	2	2	2	2	2	2	2	2	2	2	2	4
16	4	2	2	2	2	2	2	2	4	2	2	4	2	4	2	4	2	2	2	2	4	4	2	2	2	4
17	4	2	2	2	4	2	2	2	6	2	4	4	2	2	2	2	2	2	2	2	2	4	2	4	3	6
18	4	2	2	4	4	2	2	2	2	4	6	4	4	2	4	2	4	4	2	4	2	4	2	2	3	6
19	6	6	4	4	2	4	4	4	4	4	4	2	2	4	4	2	2	4	2	2	4	2	6	4	3	6
20	4	4	2	2	2	4	2	4	2	4	4	2	4	4	2	4	2	2	2	2	0	2	2	2	3	4
21	4	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	4	0	2	2	0	2	2	2	4
22	2	2	2	2	0	2	2	2	2	0	0	0	0	2	0	0	0	0	2	0	2	2	0	0	1	2
23	2	2	0	2	2	0	0	2	0	2	2	2	0	2	2	0	0	4	2	2	2	0	0	0	1	4
24	2	0	0	2	0	0	0	2	2	0	0	2	2	2	2	4	2	4	2	2	0	2	2	2	1	4
25	4	4	2	4	2	2	2	4	2	2	2	2	0	0	0	0	0	0	2	2	2	2	2	0	2	4
26	2	2	0	0	2	2	2	2	0	2	0	0	2	0	0	0	0	0	2	4	2	2	2	0	1	4
27	2	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2
28	0	2	2	0	2	2	2	2	2	0	2	2	2	0	2	4	2	2	2	0	0	2	0	2	1	4
29	0	2	2	0	2	2	0	(MT)	(MT)	2	2	2	0	2	4	4	2	2	2	2	2	4	2	0	2	4
30	2	0	2	0	2	0	2	4	4	4	2	(CA)	(CA)	(CA)	(CA)	(CA)	2	2	2	0	0	2	2	0	2	4
31	2	2	2	0	2	0	2	2	2	4	2	2	0	0	2	0	0	0	2	0	0	0	0	0	1	4
AV	2	2	1	1	1	1	1	2	2	2	2	2	1	2	2	1	1	2	1	1	1	1	1	1	2	
PK	6	6	4	4	4	4	4	4	6	4	6	4	4	4	4	4	4	4	2	4	4	4	6	4		6

NITROGEN DIOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	4	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	0	0	0	0	0	0	0	0	0	4
2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3	2	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	2	0	0	0	0	0	0	0	0	2
4	2	2	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	2
5	4	2	0	0	0	2	0	2	2	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	1	4
6	2	0	2	0	0	4	0	0	2	2	2	0	0	2	2	0	0	0	0	0	0	0	0	0	1	4
7	2	2	0	0	2	0	0	0	2	0	2	0	0	2	0	0	0	0	0	2	0	0	0	0	1	2
8	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
9	0	2	0	0	0	2	4	4	2	0	2	2	2	2	2	0	2	0	0	0	0	0	0	0	1	4
10	2	2	0	2	0	0	0	0	2	2	2	2	4	2	0	0	2	0	0	0	4	0	2	0	1	4
11	0	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	0	2	2	2	2	2	2	2	1	2
12	4	2	0	0	4	0	0	0	0	0	0	2	0	0	0	0	2	0	2	0	0	2	2	0	1	4
13	2	2	2	0	2	0	2	2	4	2	2	2	2	2	2	4	0	2	0	2	0	0	0	0	1	4
14	4	0	4	4	0	2	2	4	2	0	0	0	2	0	2	0	2	0	0	2	0	0	2	0	1	4
15	2	0	2	0	2	0	2	0	0	4	4	2	2	2	0	0	0	2	0	2	0	2	2	0	1	4
16	4	0	2	0	2	2	2	2	2	2	2	2	2	4	2	2	0	0	0	0	4	2	0	0	1	4
17	4	0	2	0	4	0	0	2	6	0	4	2	2	0	2	0	2	2	0	0	2	4	2	2	2	6
18	4	0	0	2	4	2	2	2	2	2	6	4	2	2	4	2	4	4	2	2	2	4	0	0	2	6
19	6	6	4	4	2	2	2	2	4	4	4	2	2	4	4	0	2	4	0	2	4	2	6	2	3	6
20	4	2	0	2	0	2	0	2	2	2	4	2	2	2	2	2	2	0	2	0	0	0	2	0	1	4
21	4	2	2	2	2	2	2	0	2	2	2	0	0	2	2	2	2	2	0	2	0	0	0	0	1	4
22	2	2	2	0	0	2	2	0	0	0	0	0	0	2	0	0	0	0	2	0	2	2	0	0	1	2
23	2	2	0	2	0	0	0	0	0	2	0	0	0	2	0	0	0	4	0	2	2	0	0	0	1	4
24	2	0	0	0	0	0	0	2	0	0	0	2	2	2	0	4	2	4	0	2	0	2	2	0	1	4
25	4	2	0	2	0	0	2	2	2	0	0	2	0	0	0	0	0	0	2	2	0	2	2	0	1	4
26	2	2	0	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	1	4
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
28	0	0	0	0	0	2	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	2
29	0	0	0	0	0	0	0	(MT)	(MT)	0	0	0	0	0	2	2	0	0	0	0	0	2	0	0	0	2
30	2	0	0	0	0	0	0	4	2	2	0	(CA)	(CA)	(CA)	(CA)	(CA)	0	0	0	0	0	0	0	0	0	4
31	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
AV	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	
PK	6	6	4	4	4	4	4	4	6	4	6	4	4	4	4	4	4	4	2	4	4	4	6	2		6

OZONE
(UG/M3)

CB-TRACT
TRAILER AB23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	57	61	61	55	55	61	63	61	76	82	86	94	96	100	90	88	88	88	82	74	63	59	61	61	73	100
2	55	65	63	69	63	69	47	45	65	84	(CA)	(CA)	(CA)	90	94	94	94	86	82	71	65	67	73	71	72	94
3	65	69	69	61	61	49	65	69	76	92	96	96	92	96	92	84	84	82	71	65	65	73	71	73	76	96
4	65	69	65	67	71	65	61	55	67	76	92	92	86	80	80	90	88	88	76	78	74	67	74	69	75	92
5	63	57	61	61	63	65	63	71	76	88	100	98	106	108	106	104	96	94	86	73	73	78	78	78	81	108
6	84	86	84	73	76	71	61	69	74	80	84	90	92	98	102	104	120	114	102	90	76	73	78	73	86	120
7	65	71	71	80	78	73	71	90	98	100	100	100	102	104	104	102	104	102	98	80	76	82	84	86	88	104
8	71	90	88	80	76	82	74	76	82	102	102	102	100	96	86	67	74	84	69	43	65	65	71	65	80	102
9	69	69	65	65	61	63	69	71	78	80	84	90	92	90	86	84	84	82	69	61	61	65	59	51	73	92
10	67	63	69	67	65	69	63	65	80	80	86	90	96	94	88	82	82	78	71	80	94	98	86	86	79	98
11	73	80	73	69	69	76	67	61	88	98	98	100	100	98	98	98	100	86	84	80	63	53	55	37	79	100
12	20	16	29	35	29	22	25	24	55	63	67	82	88	84	74	67	74	71	69	57	39	61	51	47	52	88
13	43	45	41	47	29	27	25	37	45	57	76	78	76	78	80	80	84	86	78	63	51	59	61	67	59	86
14	63	69	78	73	76	76	57	57	76	82	86	84	65	67	55	37	39	41	39	35	43	43	37	35	59	86
15	31	33	27	24	31	39	39	41	49	59	69	84	90	92	90	90	92	90	84	71	71	73	76	71	63	92
16	71	76	55	61	71	65	51	69	84	86	88	92	90	90	88	92	98	94	84	80	63	65	69	49	76	98
17	65	63	61	57	49	43	51	49	69	80	80	80	82	82	86	88	90	90	82	69	69	69	71	59	70	90
18	47	43	63	71	59	49	49	59	73	74	78	80	82	84	86	86	86	98	108	90	82	74	69	69	73	108
19	65	61	63	59	57	53	55	65	74	82	106	98	94	94	90	88	86	86	80	73	82	82	73	65	76	106
20	57	59	51	51	51	47	49	53	63	61	57	59	59	61	61	61	63	63	59	47	43	49	47	45	55	63
21	51	55	51	49	55	49	45	41	47	59	67	67	67	67	69	69	69	69	67	59	55	59	61	57	58	69
22	53	57	51	45	45	45	43	41	45	55	73	74	73	74	73	76	78	76	74	61	63	63	73	67	62	78
23	63	63	63	63	57	57	53	53	67	69	76	78	74	76	78	80	80	80	74	65	65	67	74	76	69	80
24	71	69	69	69	69	67	57	57	65	73	78	82	80	84	84	78	73	73	69	65	63	63	61	63	70	84
25	53	51	51	49	53	57	49	51	71	74	78	80	80	78	78	76	76	76	74	71	71	69	61	61	66	80
26	59	63	61	59	59	59	57	57	61	71	78	78	78	76	74	78	80	78	76	67	53	61	59	65	67	80
27	63	63	71	73	67	65	55	53	51	74	80	84	80	80	78	78	76	76	71	59	67	65	63	63	69	84
28	63	61	61	61	59	55	55	59	63	73	76	78	76	73	76	78	74	76	80	76	71	63	61	51	67	80
29	49	51	57	53	53	61	61	67	49	84	88	84	88	84	82	(CA)	(CA)	80	69	69	57	43	67	71	67	88
30	74	74	63	65	63	67	63	63	63	73	86	86	86	86	82	84	76	65	71	55	51	51	53	57	69	86
31	49	51	61	65	57	61	55	51	55	67	86	92	88	88	88	86	84	84	53	55	73	71	73	69	69	92
AV	59	61	61	60	59	58	55	57	67	77	83	86	85	86	84	82	83	82	76	67	65	65	66	63	70	
PK	84	90	88	80	78	82	74	90	98	102	106	102	106	108	106	104	120	114	108	90	94	98	86	86		120

CARBON MONOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

Y	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
	70	70	70	70	70	70	80	50	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	30	50	60	60	50	50	60	60	60	60	59	80
	60	60	60	60	60	50	60	60	50	30	30	30	30	50	60	60	60	60	60	60	60	60	60	60	52	60
	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60
	60	60	60	60	60	60	70	60	70	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	70
	60	60	60	60	60	60	60	70	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	58	70
	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60
	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60
	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	70	60	70	70	60	60	60	60	59	70
	60	60	60	60	70	60	70	50	20	30	50	50	50	50	30	30	30	30	30	50	50	50	50	50	46	70
	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	30	50	50	50	50	50	50	50	46	50
	50	50	50	50	50	50	50	50	50	50	50	30	30	30	30	50	50	50	50	50	50	50	50	50	44	50
	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	60	50	50	50	46	60
	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
	50	50	50	50	50	50	50	50	50	50	50	50	50	50	60	60	60	60	50	60	50	50	50	50	48	60
	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
	50	50	50	50	50	50	50	50	50	50	50	50	50	30	20	20	20	20	20	20	20	20	20	50	37	50
	50	50	50	50	50	50	50	50	50	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	39	50
	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	34	30
	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	20	30	30	30	30	30	30	34	30
	30	30	30	30	30	30	30	30	30	30	20	20	20	20	20	20	20	20	20	20	20	20	20	20	28	30
	20	20	20	20	20	20	20	50	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	32	50
	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	23	20
	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	30	30	30	30	30	30	30	30	27	30
	30	30	30	30	30	30	30	30	30	30	30	30	20	30	30	30	30	30	30	30	30	30	30	30	34	30
	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	20	20	20	20	20	20	20	20	20	30	30
	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	23	20
	20	20	20	20	20	20	20	20	20	20	20	20	20	20	30	30	30	30	30	30	30	30	30	30	28	30
	30	30	30	30	20	30	30	30	50	20	20	20	20	30	30	20	20	30	30	30	30	30	30	30	32	50
	30	30	30	30	30	30	30	20	20	20	10	10	10	10	10	10	(CA)	30	30	30	30	30	30	30	27	30
	30	30	30	30	30	30	30	30	30	30	30	30	30	20	20	30	30	30	30	30	30	30	30	30	34	30
	43	43	43	43	43	43	44	43	41	40	39	39	39	39	39	40	41	41	41	42	42	42	42	42	42	
	70	70	70	70	70	70	80	70	70	60	60	60	60	60	60	60	70	60	70	70	60	60	60	60		80

SULFUR DIOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	5	3	5	5	5	3	5	5	(CA)	(CA)	(CA)	(CA)	(CA)	13	3	0	0	0	0	0	0	0	0	0	3	13
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	3	3	5	5	3	3	3	3	3	3	3	3	3	3	3	3	3	2	5
4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	3	3	0	3	3	0	3	0	0	2	3
5	0	0	3	3	3	3	3	3	3	3	0	3	0	3	0	0	0	0	0	3	3	3	3	3	2	3
6	3	5	3	3	3	3	5	3	3	3	5	3	3	5	5	5	8	5	3	3	3	3	0	0	3	8
7	3	3	0	0	0	3	3	3	3	3	5	3	3	5	8	5	5	3	3	3	3	5	5	5	3	8
8	5	3	5	5	5	5	3	5	5	5	5	8	8	5	8	5	5	5	3	3	5	5	3	3	5	8
9	5	5	8	5	5	3	5	5	8	5	5	8	5	8	8	5	8	8	5	5	5	5	5	5	6	8
10	5	5	8	8	8	5	5	10	8	8	10	10	8	8	8	8	8	10	8	5	8	8	5	5	8	10
11	5	8	8	8	5	8	5	8	8	10	10	8	8	10	10	5	8	5	5	5	5	5	5	3	7	10
12	5	5	5	3	5	5	8	5	5	5	5	5	5	5	8	3	3	0	3	3	5	0	3	0	4	8
13	0	3	0	0	5	3	3	3	0	0	0	3	5	5	5	5	5	8	5	5	8	5	3	5	3	8
14	3	5	3	5	8	13	13	13	10	13	10	13	10	8	10	10	13	10	10	8	10	8	8	8	9	13
15	5	10	10	13	10	10	10	8	8	8	8	5	5	8	10	10	8	10	10	10	10	10	10	10	9	13
16	10	13	13	13	10	10	10	8	10	10	10	13	10	10	8	10	10	10	10	10	13	10	10	10	11	13
17	10	10	10	10	8	8	5	8	10	8	8	10	16	3	0	3	3	0	0	0	0	0	0	0	5	16
18	0	0	0	0	0	0	0	0	0	(CA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
30	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	(CA)	(CA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AV	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	3	2	2	2	3	
PK	10	13	13	13	10	13	13	13	10	13	10	13	16	13	10	10	13	10	10	10	13	10	10	10		16

HYDROGEN SULFIDE
(UG/M3)

CB-TRACT
TRAILER AB23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

AY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	1	1	3	1	1	1	1	1	1	1	1	0	0	0	1	1	3
4	0	0	0	1	0	0	0	1	1	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	2	3
5	1	0	0	1	0	0	1	1	1	4	4	4	6	4	4	4	4	4	6	4	4	3	3	3	3	6
6	1	3	3	1	1	1	3	1	3	3	4	4	6	6	6	6	6	4	4	6	4	4	4	6	4	6
7	3	4	3	3	3	4	3	4	4	6	6	7	7	6	6	6	6	6	6	4	4	3	4	3	4	7
8	3	3	3	3	3	3	3	3	3	4	6	6	3	4	6	6	4	3	6	6	4	3	3	4	4	6
9	3	3	3	3	4	3	4	4	3	4	6	6	6	6	6	7	6	6	6	6	6	4	4	3	4	7
0	3	3	3	3	3	3	3	3	4	4	4	6	6	6	6	6	6	4	6	4	4	4	4	3	4	6
1	3	3	3	3	3	3	4	3	1	3	6	6	6	6	6	4	3	4	7	3	4	3	3	3	4	7
2	1	1	1	1	1	1	1	1	1	0	1	1	1	3	4	3	3	3	3	3	1	1	1	3	2	4
3	1	1	1	1	0	1	1	1	1	1	3	3	3	3	4	3	3	1	3	3	1	1	1	1	2	4
4	1	0	0	1	1	1	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	1	3	1	3	3	3	1	1	3	0	0	0	0	1	3
7	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	1
8	0	0	0	0	0	0	0	0	0	(CA)	0	1	1	1	1	3	3	3	1	0	3	1	0	0	1	3
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1
1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	4	6	6	6	6	6	6	6	6	6	6	4	4	4	4	3	6
0	3	4	4	4	3	4	4	6	6	7	6	7	7	8	7	7	8	7	6	4	4	4	4	4	5	8
1	3	4	4	4	4	4	4	4	4	4	4	4	6	4	4	4	3	3	1	1	1	1	1	1	3	6
V	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	
X	3	4	4	4	4	4	4	6	6	7	6	7	7	8	7	7	8	7	7	6	6	4	4	6		8

PARTICULATE DATA
UG/M3

C-B TRACT
AUG 1983
OCCIDENTAL OIL SHALE, INC.

	STATION				
DAY	AB20	AB23	AB26	AD42	AD56
2	( )	14.8	( )	( )	( )
6	( )	17.4	( )	( )	( )
10	( )	27.8	( )	( )	( )
14	( )	16	( )	( )	( )
18	( )	17.8	( )	( )	( )
22	( )	21.9	( )	( )	( )
26	( )	21.5	( )	( )	( )
30	( )	17.2	( )	( )	( )
AVE	( )	19.3	( )	( )	( )
GM	( )	18.9	( )	( )	( )
PEAK	( )	27.8	( )	( )	( )

WIND SPEED @ 10M
METERS/SEC

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	2	2	1	1	2	3	2	1	2	3	4	5	4	4	4	3	3	2	2	1	1	0	2	1	2	5
2	1	0	1	1	1	0	1	2	(CM)	1	1	4	2	1	3	2	2	2	2	1	3	1	2	1	2	4
3	1	2	2	2	2	2	2	1	1	0	1	1	2	1	1	2	2	2	2	3	2	2	1	2	2	3
4	2	2	2	2	2	2	0	0	0	0	1	1	2	1	3	2	2	2	2	2	1	1	0	1	1	3
5	2	1	2	0	1	0	0	0	1	1	1	2	2	2	2	3	2	1	2	1	2	3	1	1	2	3
6	1	1	2	1	1	1	0	1	1	1	1	1	2	2	2	3	3	3	3	1	4	3	3	2	2	4
7	3	4	3	3	2	1	1	1	1	1	1	2	3	3	1	2	1	2	2	3	1	1	0	1	2	4
8	0	1	1	0	1	1	(CM)	0	0	1	0	0	0	1	3	2	2	1	1	2	0	1	0	1	1	3
9	2	1	2	2	3	2	2	(CM)	2	2	1	1	1	2	1	0	1	1	1	1	3	2	1	2	2	3
10	2	2	2	1	1	0	0	1	1	1	2	2	1	1	2	2	2	2	4	7	6	4	2	0	2	7
11	1	2	1	0	1	1	1	1	1	0	2	3	3	3	3	3	3	2	3	1	1	0	1	1	2	3
12	1	1	1	1	1	0	1	0	2	2	2	2	2	1	4	4	1	2	3	1	2	3	3	3	2	4
13	0	1	1	1	1	1	0	1	1	1	1	1	0	2	3	3	3	3	2	1	2	1	0	0	1	3
14	1	1	1	1	1	2	0	1	1	0	2	2	3	3	2	2	1	2	2	0	3	1	2	1	2	3
15	1	1	1	1	1	1	1	0	1	1	2	3	3	4	4	3	3	2	2	1	2	2	2	1	2	4
16	0	1	1	2	1	(CM)	0	2	2	2	2	4	3	3	2	3	1	2	2	1	2	2	0	2	2	4
17	2	1	1	0	1	0	1	1	1	1	1	1	1	3	3	3	3	3	3	2	1	1	0	2	2	3
18	2	1	3	4	2	2	2	3	3	4	4	4	5	5	5	4	6	7	4	2	2	0	0	1	3	7
19	1	1	1	1	0	1	1	1	1	2	3	3	3	2	3	4	4	4	2	1	5	5	4	1	2	5
20	2	2	2	2	2	2	2	1	2	3	4	4	4	4	4	3	4	3	3	2	3	0	0	0	2	4
21	0	1	1	1	1	2	1	1	1	1	3	4	5	4	4	4	4	4	3	2	2	1	1	0	2	5
22	2	1	1	2	2	1	1	1	1	1	2	4	4	4	3	3	3	3	2	2	2	1	5	1	2	5
23	2	3	1	0	1	1	(CM)	2	4	4	5	5	4	4	3	4	4	4	3	2	2	0	0	0	3	5
24	0	0	1	1	1	1	0	1	1	2	3	5	6	4	4	6	5	3	4	3	2	2	2	3	3	6
25	3	3	3	2	2	2	2	1	2	3	3	4	4	4	4	4	4	4	4	4	2	3	2	2	3	4
26	2	2	2	2	3	2	2	2	1	1	1	1	1	1	(CM)	1	1	2	1	0	1	0	1	2	2	3
27	2	1	1	1	1	1	1	1	1	1	1	2	1	(CM)	2	3	2	1	0	3	4	4	3	0	2	4
28	1	2	2	2	3	2	2	3	2	3	1	0	4	3	4	3	2	(CM)	5	3	1	1	1	1	2	5
29	0	1	1	1	0	1	2	1	1	2	4	1	4	3	3	2	3	3	2	1	1	1	0	2	2	4
30	3	1	0	1	2	2	1	0	1	1	1	2	3	2	2	2	1	3	4	3	3	1	1	1	2	4
31	1	0	1	1	1	1	1	(CM)	1	1	2	2	2	2	2	3	2	0	1	1	0	1	1	0	1	3
AV	2	1	2	1	1	1	1	1	1	2	2	3	3	3	3	3	3	2	2	2	2	2	1	1	2	
PK	3	4	3	4	3	3	2	3	4	4	5	5	6	5	5	6	6	7	5	7	6	5	5	3		7

WIND SPEED @ 30M
METERS/SEC

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

Y	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
	3	3	2	1	2	4	3	1	3	4	6	6	5	5	6	4	4	3	3	1	2	0	3	2	3	6
	1	1	1	0	1	0	0	3	0	1	1	4	3	1	4	2	2	2	3	2	4	3	4	1	2	4
	2	3	3	4	3	3	3	2	1	1	1	1	3	1	2	3	2	3	3	4	4	4	2	3	3	4
	3	4	3	2	2	2	0	0	1	1	1	2	2	1	4	3	3	3	3	3	2	3	1	3	2	4
	3	2	3	0	1	1	1	0	1	2	2	2	3	3	3	3	3	2	3	1	4	4	2	2	2	4
	1	2	3	1	1	0	(CM)	1	1	1	2	1	3	3	3	4	4	4	4	3	6	5	4	4	3	6
	4	5	4	4	4	2	3	1	2	1	1	2	4	3	2	2	1	3	4	4	1	1	1	1	2	5
	1	2	2	(CM)	1	2	0	0	1	1	1	1	0	2	4	3	2	1	2	2	0	0	0	1	1	4
	3	3	2	3	5	4	3	0	3	3	1	1	2	2	1	1	2	1	2	1	4	4	0	2	2	5
	3	3	3	2	1	0	1	1	2	2	2	3	1	2	2	3	3	3	6	9	8	5	3	1	3	9
	2	3	2	0	1	2	2	1	1	0	2	4	4	4	4	4	4	4	5	2	2	1	1	2	2	5
	1	1	2	1	1	1	1	1	3	2	3	3	2	2	5	5	1	3	4	2	3	4	4	4	2	5
	1	1	2	2	1	1	0	1	1	1	1	1	1	3	4	4	4	4	3	2	1	1	0	1	2	4
	1	1	2	0	1	3	1	1	2	0	2	3	4	5	3	2	2	4	4	0	5	1	2	1	2	5
	2	2	2	1	1	1	1	1	1	2	3	4	4	4	5	4	4	3	3	3	2	1	2	1	2	5
	0	1	1	2	2	(CM)	0	3	3	3	2	5	4	4	4	4	2	2	3	2	1	1	1	2	2	5
	3	1	1	1	1	1	1	1	1	2	2	1	1	4	4	4	4	4	4	4	3	1	(CM)	4	2	4
	3	2	4	7	2	3	3	4	4	5	6	6	7	7	6	6	8	11	7	4	4	1	(CM)	2	5	11
	2	2	2	2	0	1	1	1	1	3	4	4	3	3	4	5	5	5	4	2	7	8	5	2	3	8
	4	3	2	3	1	2	3	2	3	4	5	6	6	6	5	4	5	4	4	4	4	0	1	0	3	6
	0	2	1	1	1	3	2	1	2	2	4	5	6	5	5	5	5	5	4	3	4	3	3	1	3	6
	3	2	2	2	2	1	1	2	1	1	3	5	5	6	4	4	4	4	4	4	4	3	8	4	3	8
	4	5	2	2	3	1	0	3	6	6	7	7	5	6	4	6	6	5	4	4	4	0	0	0	4	7
	(CM)	0	2	2	1	1	0	1	2	3	3	6	8	6	5	8	7	4	6	4	4	4	3	5	4	8
	4	5	4	4	3	4	3	2	3	4	4	5	6	5	5	5	5	6	5	6	4	5	3	3	4	6
	3	3	3	4	4	4	4	3	1	1	1	1	2	1	0	1	2	3	2	1	1	0	2	3	2	4
	3	2	1	2	1	0	1	1	1	1	2	3	2	0	3	4	3	2	1	5	7	6	6	2	2	7
	2	3	3	3	4	3	3	4	3	4	2	0	5	4	5	4	3	(CM)	8	5	1	2	2	1	3	8
	1	1	1	2	1	1	2	2	1	2	4	2	4	4	4	2	4	4	4	4	1	1	1	4	2	4
	5	2	1	2	2	2	1	0	0	1	1	2	4	2	2	2	2	5	5	3	4	1	2	3	2	5
	1	1	1	(CM)	0	(CM)	1	(CM)	1	1	2	2	3	2	2	3	2	0	1	0	1	1	1	0	1	3
	2	2	2	2	2	2	2	2	2	2	3	3	4	3	4	4	4	4	4	3	3	2	2	2	3	
	5	5	4	7	5	4	4	4	6	6	7	7	8	7	6	8	8	11	8	9	8	8	8	5		11

WIND SPEED @ 60M
METERS/SEC

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	3	3	1	1	2	3	3	2	3	4	6	7	6	5	7	4	4	3	3	2	3	1	3	3	3	7
2	0	1	1	(CM)	1	1	0	3	1	1	2	5	3	1	4	2	3	2	4	2	5	4	6	2	2	6
3	3	4	3	4	4	3	3	2	2	1	1	1	3	2	2	3	3	3	4	5	4	5	4	4	3	5
4	4	4	3	2	2	2	1	0	1	1	1	2	2	1	4	4	3	4	3	4	2	4	1	3	2	4
5	3	3	3	1	1	1	1	0	1	2	2	3	3	3	3	4	3	3	4	0	4	4	3	2	2	4
6	2	3	4	1	1	1	0	1	1	2	2	2	3	4	3	4	4	4	5	3	7	6	6	4	3	7
7	5	5	4	6	5	4	4	2	2	2	1	3	4	4	2	3	1	3	4	4	2	1	1	0	3	6
8	1	3	3	1	0	2	1	0	1	2	1	1	1	2	4	3	2	1	2	2	0	0	1	1	2	4
9	3	4	3	3	6	5	4	0	3	3	1	1	2	2	1	1	2	1	2	1	5	4	0	1	2	6
10	4	3	4	2	2	0	1	1	2	2	3	3	1	2	2	3	3	3	8	11	10	7	4	2	3	11
11	1	4	2	2	1	2	2	1	0	0	3	4	4	5	5	4	4	4	5	3	2	0	2	2	3	5
12	1	2	3	2	2	1	1	1	4	2	3	3	2	2	6	6	2	3	4	3	4	5	4	5	3	6
13	3	1	1	2	2	2	1	1	1	1	1	1	1	3	4	4	4	4	3	3	1	1	1	1	2	4
14	1	1	1	1	1	2	2	1	2	0	2	3	4	6	3	2	2	4	4	0	6	2	3	1	2	6
15	3	2	3	2	1	1	1	1	2	2	3	5	4	5	5	4	4	4	4	3	1	1	1	2	3	5
16	1	1	2	2	1	0	0	3	3	3	3	5	5	4	4	4	2	2	3	3	0	1	2	3	2	5
17	3	1	1	2	1	1	2	1	2	2	2	2	1	4	4	5	5	4	4	5	4	1	0	5	3	5
18	4	3	6	8	2	4	4	4	4	6	6	7	8	8	7	7	9	13	8	5	5	2	0	2	6	13
19	3	2	2	3	1	1	1	1	1	3	4	4	4	3	4	5	5	5	4	2	8	8	6	3	4	8
20	5	4	1	4	1	2	3	2	3	4	6	6	6	6	5	4	5	5	4	4	4	1	1	0	4	6
21	0	1	1	1	1	3	4	2	2	2	5	6	7	6	5	5	6	5	4	3	5	4	4	2	4	7
22	2	2	1	3	2	1	1	2	1	1	3	6	5	6	4	5	4	4	4	4	4	5	9	6	4	9
23	5	7	4	4	5	1	2	4	6	7	7	8	6	6	4	7	7	5	4	4	4	0	1	2	5	8
24	1	1	3	2	2	0	1	1	2	3	4	7	8	7	6	8	7	4	6	5	4	5	4	6	4	8
25	4	5	5	3	3	3	3	2	3	4	4	6	6	5	5	6	5	6	6	7	6	6	3	4	5	7
26	4	4	3	3	3	3	3	3	2	1	1	1	2	1	0	2	2	3	2	2	1	1	2	4	2	4
27	4	3	2	1	1	0	1	1	1	2	2	3	2	0	3	4	4	2	1	5	8	8	7	4	3	8
28	3	4	3	3	3	3	3	4	4	4	2	1	5	4	6	4	4	0	8	7	1	3	3	1	4	8
29	1	1	1	1	1	1	2	2	1	3	5	2	5	4	4	3	4	5	4	5	1	2	1	4	3	5
30	6	3	2	2	2	2	0	1	0	1	2	3	4	3	3	3	2	5	5	3	2	0	2	3	2	6
31	1	0	1	0	0	0	1	1	1	2	2	2	3	2	3	4	2	1	0	0	2	1	0	0	1	4
AV	3	3	2	2	2	2	2	2	2	2	3	4	4	4	4	4	4	4	4	4	4	3	3	3	3	
PK	6	7	6	8	6	5	4	4	6	7	7	8	8	8	7	8	9	13	8	11	10	8	9	6		13

WIND DIRECTION @ 10M
DEGREES

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	129	130	109	115	177	172	140	148	214	224	223	229	239	226	338	336	15	69	140	199	304	79	161	209	173
2	60	174	229	138	235	158	90	161	(CM)	35	321	308	306	238	286	246	1	359	345	335	176	166	147	87	233
3	116	139	103	118	148	176	137	94	79	189	238	208	294	302	128	221	209	155	184	176	156	157	124	126	157
4	140	143	117	144	154	180	143	315	348	21	338	327	46	289	276	86	127	103	135	165	66	132	90	120	111
5	160	107	107	210	207	104	161	56	348	330	328	323	337	320	2	0	3	66	100	245	148	128	139	138	75
6	105	138	144	203	264	213	149	328	318	329	339	351	352	338	18	20	9	33	56	96	148	126	145	156	52
7	159	168	160	173	180	150	131	185	231	248	223	224	186	172	175	166	196	165	186	211	142	182	241	102	181
8	124	157	193	214	220	115	(CM)	0	4	322	9	207	235	10	265	228	231	277	263	213	222	225	201	224	232
9	115	143	106	156	159	135	124	(CM)	209	220	202	313	148	40	97	63	291	204	222	201	125	172	304	169	161
10	196	102	145	188	207	130	101	82	354	341	323	315	311	11	11	33	66	161	206	203	194	170	177	172	149
11	131	161	270	95	129	163	101	79	14	219	224	234	233	202	290	330	340	71	151	184	97	19	109	152	150
12	217	161	180	196	188	339	155	94	183	81	82	67	33	321	301	289	323	298	305	277	283	280	134	125	238
13	84	110	92	119	250	222	121	68	39	63	5	28	324	269	235	233	227	242	267	242	211	219	225	174	209
14	222	141	171	125	141	161	184	87	78	130	279	318	167	146	180	196	199	191	184	248	209	164	181	171	174
15	111	183	268	221	185	164	207	104	117	193	180	238	232	230	227	225	241	231	271	233	133	150	148	243	201
16	97	194	230	235	193	(CM)	194	107	114	104	153	225	235	234	300	336	356	298	290	9	217	220	145	248	217
17	227	194	193	135	227	153	251	81	320	321	329	324	279	289	246	243	253	226	240	227	225	135	233	142	235
18	123	133	220	164	205	171	111	143	168	172	180	180	188	178	218	222	201	216	207	200	202	231	140	239	185
19	185	106	147	182	192	127	129	84	62	305	222	230	249	242	237	263	245	247	243	135	131	151	155	125	184
20	128	129	100	128	82	130	141	165	211	218	204	213	208	221	228	216	235	235	231	209	214	36	336	354	189
21	286	153	182	177	155	153	156	71	73	152	205	209	205	182	176	170	215	219	225	193	210	182	153	94	177
22	108	146	255	248	230	150	161	74	33	0	243	242	232	197	214	205	228	232	248	212	213	169	181	184	206
23	176	193	207	189	219	137	(CM)	180	215	212	204	202	208	214	187	208	225	239	242	210	221	200	207	214	205
24	0	0	210	198	228	27	60	79	62	180	203	177	181	208	203	180	145	146	153	137	133	128	91	122	149
25	109	133	121	109	114	123	101	79	223	209	218	218	214	217	232	205	187	182	176	174	176	168	116	116	164
26	115	147	129	126	136	140	148	114	74	330	14	329	303	189	(CM)	27	0	22	35	56	219	189	141	158	105
27	157	128	138	161	217	193	246	60	11	340	346	327	262	(CM)	239	270	297	270	260	154	165	163	157	111	208
28	170	137	132	129	118	119	149	131	154	207	232	311	21	24	337	56	102	(CM)	277	251	144	114	118	209	139
29	292	237	169	92	276	119	149	127	71	235	209	225	11	28	66	354	115	127	183	185	303	275	156	213	174
30	237	182	169	156	120	117	143	350	28	3	28	338	305	326	347	340	120	199	176	226	214	237	134	153	176
31	214	199	208	214	226	233	222	(CM)	28	327	339	28	303	326	4	329	306	259	219	207	239	210	240	158	255
PV	146	150	165	162	188	150	146	94	54	265	257	267	259	254	257	261	246	212	217	203	187	171	158	159	180

WIND DIRECTION @ 30M
DEGREES

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

AY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
	129	130	112	87	142	148	142	158	209	219	219	224	233	222	334	333	8	66	132	171	307	5	136	171	160
	47	113	233	104	231	229	102	154	211	37	315	303	299	232	284	241	0	355	341	342	168	168	152	111	236
	128	145	107	105	133	153	126	90	73	177	238	208	292	298	125	217	199	149	177	167	150	152	135	121	151
	129	132	121	127	135	149	153	289	348	19	338	329	45	284	274	84	122	96	129	156	82	123	87	94	103
	146	137	113	225	208	79	124	53	349	324	321	323	333	319	359	0	358	62	94	235	140	131	127	125	67
	94	106	122	183	294	219	(CM)	324	316	328	338	349	353	334	17	17	11	30	53	83	142	126	141	150	36
	162	166	159	173	176	166	141	178	227	240	222	220	181	163	167	160	189	157	179	198	163	169	292	81	179
	107	130	146	(CM)	242	115	240	4	0	314	0	197	221	5	261	234	229	274	266	216	259	258	150	217	238
	112	138	107	148	143	122	117	259	205	215	202	308	140	37	92	62	286	200	215	188	102	140	330	162	153
	183	105	128	164	236	90	90	76	354	336	321	309	306	5	11	34	63	158	199	199	191	167	174	240	137
	123	152	254	189	110	148	116	95	19	217	222	230	228	199	285	325	338	62	145	173	91	34	86	137	150
	204	143	155	168	173	277	144	112	181	81	80	66	31	317	297	285	321	292	301	282	291	277	122	126	209
	145	145	82	87	287	248	141	63	36	67	11	31	311	264	230	227	224	239	265	258	215	196	207	209	217
	220	111	158	122	121	147	158	100	79	139	274	314	152	126	153	170	194	168	173	219	204	177	183	176	162
	98	139	275	241	199	118	186	107	116	183	175	233	227	227	221	221	233	228	266	238	128	139	134	266	195
	14	145	264	262	202	(CM)	233	105	113	100	143	222	233	231	294	330	352	295	293	11	219	238	208	266	245
	242	208	175	121	243	121	250	71	314	314	330	316	278	284	243	237	248	218	238	231	229	122	(CM)	136	238
	136	175	212	159	204	172	111	141	162	165	174	174	181	173	212	217	194	211	202	192	193	228	(CM)	243	184
	184	111	123	163	225	90	128	85	62	301	217	227	243	235	234	257	240	242	239	148	125	145	149	128	180
	123	133	110	127	92	112	134	174	209	213	199	209	203	216	224	213	228	231	226	210	213	22	331	354	187
	22	140	159	153	148	141	145	92	75	146	201	205	201	177	171	165	211	215	221	194	203	191	158	207	171
	102	122	275	265	251	166	145	80	39	3	237	237	229	193	212	202	222	227	242	217	209	180	172	179	204
	174	180	201	188	201	120	207	182	209	208	198	198	204	210	183	202	219	234	238	215	215	135	184	188	197
	(CM)	270	198	195	211	348	351	79	61	175	196	171	175	201	198	173	140	143	146	135	132	125	99	118	158
	108	119	112	107	109	123	112	103	219	204	214	215	209	212	228	200	182	176	169	167	169	165	132	128	162
	125	141	134	125	119	124	135	111	73	324	15	325	297	191	68	27	357	19	29	61	196	243	128	143	94
	156	161	159	136	164	180	249	59	10	336	339	322	260	189	235	266	293	265	259	142	157	156	151	145	199
	161	141	123	125	109	108	131	128	148	202	229	300	19	25	330	52	101	(CM)	272	245	161	111	111	192	134
	320	291	139	73	25	79	122	121	70	231	205	223	4	23	62	349	111	125	157	171	297	284	177	203	119
	234	189	204	157	132	119	118	351	25	3	28	331	300	320	338	335	121	183	163	231	213	251	114	137	181
	213	27	209	(CM)	251	(CM)	180	(CM)	38	326	332	28	300	325	5	324	303	265	219	180	137	196	276	354	290
	141	142	156	150	180	137	144	100	61	254	252	262	253	246	253	255	238	205	211	196	180	168	148	161	175

WIND DIRECTION @ 60M
DEGREES

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	145	151	143	22	125	135	152	169	206	216	218	224	232	222	335	333	4	64	130	163	307	327	121	151	168
2	58	90	183	(CM)	222	246	249	166	190	51	319	305	301	232	286	243	359	355	344	0	164	173	161	137	243
3	149	159	122	110	126	158	133	94	73	168	235	215	293	302	128	220	196	153	175	166	150	155	150	130	156
4	131	139	138	124	143	147	159	199	339	30	345	334	47	290	275	82	124	98	130	157	101	131	132	96	118
5	143	157	124	176	212	120	118	102	9	325	326	326	335	322	357	2	358	62	95	256	143	139	136	135	90
6	127	95	111	132	333	343	341	323	319	333	340	347	356	337	20	19	13	32	55	77	145	136	150	160	30
7	176	173	168	174	175	169	148	177	222	239	220	217	181	164	167	158	192	156	179	195	189	163	270	24	183
8	88	111	130	168	109	105	207	12	7	306	6	202	215	1	267	249	235	280	275	241	275	207	133	180	217
9	126	142	125	156	142	122	125	265	202	213	209	315	134	39	96	70	289	202	215	201	93	126	31	159	150
10	185	119	130	164	252	165	135	84	357	336	327	313	310	4	12	37	63	158	197	199	192	172	180	250	167
11	136	149	239	201	119	156	162	159	32	225	221	228	226	199	285	325	339	60	143	170	107	122	66	102	163
12	124	123	140	152	155	268	197	174	181	90	82	64	32	326	300	289	322	291	301	289	301	282	115	133	194
13	156	164	94	82	319	273	220	79	42	71	19	29	299	266	228	225	222	239	265	279	227	188	167	204	223
14	220	113	158	196	63	118	171	125	84	119	272	315	150	116	150	149	195	165	169	243	206	193	197	159	163
15	95	129	274	271	233	143	147	123	119	178	174	230	225	226	219	220	229	229	265	245	158	163	139	274	198
16	298	140	308	300	216	248	274	99	116	105	149	221	231	231	295	332	353	297	304	8	52	256	237	289	273
17	269	232	168	114	255	147	261	39	316	314	332	314	265	283	243	236	246	215	238	238	233	135	276	127	248
18	136	184	209	161	203	181	125	151	165	167	174	173	181	175	211	215	192	210	203	194	195	236	264	246	189
19	186	118	112	155	248	105	158	95	70	299	217	226	242	229	233	255	238	241	237	168	128	148	151	140	185
20	132	148	140	140	134	121	143	183	211	212	197	209	201	215	221	213	226	229	225	218	221	246	262	249	198
21	286	131	146	121	132	134	143	116	83	145	199	204	201	177	171	167	211	214	221	204	209	204	166	194	173
22	102	109	285	284	285	238	150	98	58	9	233	236	227	192	212	202	222	227	240	222	219	189	171	186	211
23	181	182	200	194	199	164	187	184	206	205	196	197	203	209	184	201	216	235	237	223	226	90	185	190	197
24	185	204	195	188	188	265	318	66	60	176	194	171	175	199	197	174	143	148	149	145	143	138	112	120	166
25	116	120	118	120	109	134	141	137	215	202	214	215	209	211	228	199	182	178	170	166	170	168	160	146	168
26	138	145	152	133	122	125	137	117	74	338	15	325	298	198	107	30	356	21	30	60	125	290	122	143	94
27	158	174	196	143	156	215	191	110	32	336	340	323	261	188	235	266	295	260	285	143	158	157	155	149	198
28	158	150	138	135	119	116	118	135	153	200	231	300	21	32	332	50	104	217	274	250	213	113	107	148	144
29	318	318	166	79	35	23	105	125	87	229	205	228	0	22	60	356	109	126	155	166	281	295	207	209	114
30	238	199	213	170	156	138	238	315	17	2	29	332	301	320	336	333	118	177	162	253	229	270	95	127	241
31	183	81	58	107	139	125	122	114	61	329	338	30	303	329	8	326	304	277	240	307	137	162	262	191	35
PV	153	144	155	150	165	153	162	125	79	246	251	263	251	247	248	255	237	206	213	208	182	176	159	163	178

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
10 METER LEVEL

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	129	130	109	115	177	172	140	148	214	224	223	229	239	226	338	336	15	69	140	199	304	79	161	209	205	0.9
2	60	174	229	138	235	158	90	161	***	35	321	308	306	238	286	246	1	359	345	335	176	166	147	87	277	0.3
3	116	139	103	118	148	176	137	94	79	189	238	208	294	302	128	221	209	155	184	176	156	157	124	126	155	1.2
4	140	143	117	144	154	180	143	315	348	21	338	327	46	289	276	86	127	103	135	165	66	132	90	120	126	0.7
5	160	107	107	210	207	104	161	56	348	330	328	323	337	320	2	0	3	66	100	245	148	128	139	138	47	0.4
6	105	138	144	203	264	213	149	328	318	329	339	351	352	338	18	20	9	33	56	96	148	126	145	156	60	0.6
7	159	168	160	173	180	150	131	185	231	248	223	224	186	172	175	166	196	165	186	211	142	182	241	102	178	1.6
8	124	157	193	214	220	115	***	0	4	322	9	207	235	10	265	228	231	277	263	213	222	225	201	224	234	0.6
9	115	143	106	156	159	135	124	***	209	220	202	313	148	40	97	63	291	204	222	201	125	172	304	169	157	0.9
10	196	102	145	188	207	130	101	82	354	341	323	315	311	11	11	33	66	161	206	203	194	170	177	172	185	0.7
11	131	161	270	95	129	163	101	79	14	219	224	234	233	202	290	330	340	71	151	184	97	19	109	152	191	0.4
12	217	161	180	196	188	339	155	94	183	81	82	67	33	321	301	289	323	298	305	277	283	280	134	125	285	0.3
13	84	110	92	119	250	222	121	68	39	63	5	28	324	269	235	233	227	242	267	242	211	219	225	174	231	0.6
14	222	141	171	125	141	161	184	87	78	130	279	318	167	146	180	196	199	191	184	248	209	164	181	171	179	1.0
15	111	183	268	221	185	164	207	104	117	193	180	238	232	230	227	225	241	231	271	233	133	150	148	243	213	1.4
16	97	194	230	235	193	***	194	107	114	104	153	225	235	234	300	336	356	298	290	9	217	220	145	248	235	0.7
17	227	194	193	135	227	153	251	81	320	321	329	324	279	289	246	243	253	226	240	227	225	135	233	142	242	1.0
18	123	133	220	164	205	171	111	143	168	172	180	180	188	178	218	222	201	216	207	200	202	231	140	239	190	2.9
19	185	106	147	182	192	127	129	84	62	305	222	230	249	242	237	263	245	247	243	135	131	151	155	125	198	1.2
20	128	129	100	128	82	130	141	165	211	218	204	213	208	221	228	216	235	235	231	209	214	36	336	354	202	1.7
21	286	153	182	177	155	153	156	71	73	152	205	209	205	182	176	170	215	219	225	193	210	182	153	94	189	1.8
22	108	146	255	248	230	150	161	74	33	0	243	242	232	197	214	205	228	232	248	212	213	169	181	184	212	1.7
23	176	193	207	189	219	137	***	180	215	212	204	202	208	214	187	208	225	239	242	210	221	200	207	214	209	2.5
24	0	0	210	198	228	27	60	79	62	180	203	177	181	208	203	180	145	146	153	137	133	128	91	122	164	2.0
25	109	133	121	109	114	123	101	79	223	209	218	218	214	217	232	205	187	182	176	174	176	168	116	116	175	2.1
26	115	147	129	126	136	140	148	114	74	330	14	329	303	189	***	27	0	22	35	56	219	189	141	158	114	0.7
27	157	128	138	161	217	193	246	60	11	340	346	327	262	***	239	270	297	270	260	154	165	163	157	111	196	0.7
28	170	137	132	129	118	119	149	131	154	207	232	311	21	24	337	56	102	***	277	251	144	114	118	209	129	0.6
29	292	237	169	92	276	119	149	127	71	235	209	225	11	28	66	354	115	127	183	185	303	275	156	213	145	0.4
30	237	182	169	156	120	117	143	350	28	3	28	338	305	326	347	340	120	199	176	226	214	237	134	153	209	0.5
31	214	199	208	214	226	233	222	***	28	327	339	28	303	326	4	329	306	259	219	207	239	210	240	158	282	0.6
VD	151	148	157	159	175	149	142	106	148	224	226	240	235	228	256	247	228	209	213	200	182	166	152	157	191	
VV	1.1	1.2	1.0	1.1	1.0	1.1	0.9	0.9	0.3	0.6	1.1	1.4	1.3	1.2	1.3	1.0	0.9	1.1	1.3	1.5	1.6	1.3	1.2	0.9		0.9

TOTAL NUMBER OF OBSERVATIONS = 735

NOTE: **** = MISSING DATA

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
30 METER LEVEL

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	129	130	112	87	142	148	142	158	209	219	219	224	233	222	334	333	8	66	132	171	307	5	136	171	194	1.0
2	47	113	233	104	231	229	102	154	211	37	315	303	299	232	284	241	0	355	341	342	168	168	152	111	262	0.4
3	128	145	107	105	133	153	126	90	73	177	238	208	292	298	125	217	199	149	177	167	150	152	135	121	148	1.8
4	129	132	121	127	135	149	153	289	348	19	338	329	45	284	274	84	122	96	129	156	82	123	87	94	114	1.2
5	146	137	113	225	208	79	124	53	349	324	321	323	333	319	359	0	358	62	94	235	140	131	127	125	65	0.6
6	94	106	122	183	294	219	***	324	316	328	338	349	353	334	17	17	11	30	53	83	142	126	141	150	63	1.1
7	162	166	159	173	176	166	141	178	227	240	222	220	181	163	167	160	189	157	179	198	163	169	292	81	174	2.2
8	107	130	146	***	242	115	240	4	0	314	0	197	221	5	261	234	229	274	266	216	259	258	150	217	233	0.6
9	112	138	107	148	143	122	117	259	205	215	202	308	140	37	92	62	286	200	215	188	102	140	330	162	142	1.4
10	183	105	128	164	236	90	90	76	354	336	321	309	306	5	11	34	63	158	199	199	191	167	174	240	178	1.1
11	123	152	254	189	110	148	116	95	19	217	222	230	228	199	285	325	338	62	145	173	91	34	86	137	176	0.6
12	204	143	155	168	173	277	144	112	181	81	80	66	31	317	297	285	321	292	301	282	291	277	122	126	274	0.4
13	145	145	82	87	287	248	141	63	36	67	11	31	311	264	230	227	224	239	265	258	215	196	207	209	235	0.8
14	220	111	158	122	121	147	158	100	79	139	274	314	152	126	153	170	194	168	173	219	204	177	183	176	165	1.5
15	98	139	275	241	199	118	186	107	116	183	175	233	227	227	221	221	233	228	266	238	128	139	134	266	213	1.7
16	14	145	264	262	202	***	233	105	113	100	143	222	233	231	294	330	352	295	293	11	219	238	208	266	250	0.9
17	242	208	175	121	243	121	250	71	314	314	330	316	278	284	243	237	248	218	238	231	229	122	***	136	238	1.5
18	136	175	212	159	204	172	111	141	162	165	174	174	181	173	212	217	194	211	202	192	193	228	***	243	186	4.4
19	184	111	123	163	225	90	128	85	62	301	217	227	243	235	234	257	240	242	239	148	125	145	149	128	193	1.7
20	123	133	110	127	92	112	134	174	209	213	199	209	203	216	224	213	228	231	226	210	213	22	331	354	199	2.6
21	22	140	159	153	148	141	145	92	75	146	201	205	201	177	171	165	211	215	221	194	203	191	158	207	184	2.7
22	102	122	275	265	251	166	145	80	39	3	237	237	229	193	212	202	222	227	242	217	209	180	172	179	207	2.4
23	174	180	201	188	201	120	207	182	209	208	198	198	204	210	183	202	219	234	238	215	215	135	184	188	203	3.6
24	***	270	198	195	211	348	351	79	61	175	196	171	175	201	198	173	140	143	146	135	132	125	99	118	159	3.0
25	108	119	112	107	109	123	112	103	219	204	214	215	209	212	228	200	182	176	169	167	169	165	132	128	167	3.3
26	125	141	134	125	119	124	135	111	73	324	15	325	297	191	68	27	357	19	29	61	196	243	128	143	107	1.1
27	156	161	159	136	164	180	249	59	10	336	339	322	260	189	235	266	293	265	259	142	157	156	151	145	182	1.1
28	161	141	123	125	109	108	131	128	148	202	229	300	19	25	330	52	101	***	272	245	161	111	111	192	127	0.9
29	320	291	139	73	25	79	122	121	70	231	205	223	4	23	62	349	111	125	157	171	297	284	177	203	127	0.6
30	234	189	204	157	132	119	118	351	25	3	28	331	300	320	338	335	121	183	163	231	213	251	114	137	197	0.8
31	213	27	209	***	251	***	180	***	38	326	332	28	300	325	5	324	303	265	219	180	137	196	276	354	317	0.7
VD	146	141	148	145	158	135	134	114	155	215	219	233	230	221	253	239	218	199	205	194	174	157	145	150	181	
VV	1.7	2.0	1.4	1.6	1.2	1.5	1.3	1.1	0.5	0.8	1.4	1.9	1.8	1.6	1.7	1.4	1.2	1.6	1.9	2.1	2.3	1.8	2.0	1.5		1.2

TOTAL NUMBER OF OBSERVATIONS = 734

NOTE: **** = MISSING DATA

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
60 METER LEVEL

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	145	151	143	22	125	135	152	169	206	216	218	224	232	222	335	333	4	64	130	163	307	327	121	151	200	1.2
2	58	90	183	***	222	246	249	166	190	51	319	305	301	232	286	243	359	355	344	0	164	173	161	137	236	0.5
3	149	159	122	110	126	158	133	94	73	168	235	215	293	302	128	220	196	153	175	166	150	155	150	130	153	2.2
4	131	139	138	124	143	147	159	199	339	30	345	334	47	290	275	82	124	98	130	157	101	131	132	96	122	1.5
5	143	157	124	176	212	120	118	102	9	325	326	326	335	322	357	2	358	62	95	256	143	139	136	135	80	0.6
6	127	95	111	132	333	343	341	323	319	333	340	347	356	337	20	19	13	32	55	77	145	136	150	160	68	1.2
7	176	173	168	174	175	169	148	177	222	239	220	217	181	164	167	158	192	156	179	195	189	163	270	24	178	2.8
8	88	111	130	168	109	105	207	12	7	306	6	202	215	1	267	249	235	280	275	241	275	207	133	180	227	0.4
9	126	142	125	156	142	122	125	265	202	213	209	315	134	39	96	70	289	202	215	201	93	126	31	159	140	1.6
10	185	119	130	164	252	165	135	84	357	336	327	313	310	4	12	37	63	158	197	199	192	172	180	250	184	1.4
11	136	149	239	201	119	156	162	159	32	225	221	228	226	199	285	325	339	60	143	170	107	122	66	102	187	0.9
12	124	123	140	152	155	268	197	174	181	90	82	64	32	326	300	289	322	291	301	289	301	282	115	133	268	0.4
13	156	164	94	82	319	273	220	79	42	71	19	29	299	266	228	225	222	239	265	279	227	188	167	204	234	0.9
14	220	113	158	196	63	118	171	125	84	119	272	315	150	116	150	149	195	165	169	243	206	193	197	159	165	1.6
15	95	129	274	271	233	143	147	123	119	178	174	230	225	226	219	220	229	229	265	245	158	163	139	274	215	1.9
16	298	140	308	300	216	248	274	99	116	105	149	221	231	231	295	332	353	297	304	8	52	256	237	289	268	0.9
17	269	232	168	114	255	147	261	39	316	314	332	314	265	283	243	236	246	215	238	238	233	135	276	127	243	1.6
18	136	184	209	161	203	181	125	151	165	167	174	173	181	175	211	215	192	210	203	194	195	236	264	246	187	5.0
19	186	118	112	155	248	105	158	95	70	299	217	226	242	229	233	255	238	241	237	168	128	148	151	140	192	2.2
20	132	148	140	140	134	121	143	183	211	212	197	209	201	215	221	213	226	229	225	218	221	246	262	249	200	3.1
21	286	131	146	121	132	134	143	116	83	145	199	204	201	177	171	167	211	214	221	204	209	204	166	194	185	3.1
22	102	109	285	284	285	238	150	98	58	9	233	236	227	192	212	202	222	227	240	222	219	189	171	186	209	2.7
23	181	182	200	194	199	164	187	184	206	205	196	197	203	209	184	201	216	235	237	223	226	90	185	190	202	4.4
24	185	204	195	188	188	265	318	66	60	176	194	171	175	199	197	174	143	148	149	145	143	138	112	120	162	3.4
25	116	120	118	120	109	134	141	137	215	202	214	215	209	211	228	199	182	178	170	166	170	168	160	146	172	3.8
26	138	145	152	133	122	125	137	117	74	338	15	325	298	198	107	30	356	21	30	60	125	290	122	143	108	1.2
27	158	174	196	143	156	215	191	110	32	336	340	323	261	188	235	266	295	260	285	143	158	157	155	149	181	1.4
28	158	150	138	135	119	116	118	135	153	200	231	300	21	32	332	50	104	217	274	250	213	113	107	148	139	0.9
29	318	318	166	79	35	23	105	125	87	229	205	228	0	22	60	356	109	126	155	166	281	295	207	209	131	0.6
30	238	199	213	170	156	138	238	315	17	2	29	332	301	320	336	333	118	177	162	253	229	270	95	127	217	0.7
31	183	81	58	107	139	125	122	114	61	329	338	30	303	329	8	326	304	277	240	307	137	162	262	191	344	0.5
WD	156	148	155	152	161	145	149	134	151	212	218	234	228	220	252	240	219	198	205	197	176	165	152	154	184	
WV	2.0	2.4	1.7	1.8	1.2	1.3	1.5	1.2	0.7	0.9	1.5	2.0	1.9	1.7	1.8	1.4	1.3	1.8	2.1	2.3	2.6	2.3	2.3	2.0		1.4

TOTAL NUMBER OF OBSERVATIONS = 743

NOTE: **** = MISSING DATA

SIGMA HORIZ. WIND DIR. @ 10M
DEGREES

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	4	4	7	10	9	5	6	13	15	14	15	13	14	16	11	12	9	10	6	16	7	8	3	8	10	16
2	4	20	9	10	11	8	6	6	(CM)	10	14	12	19	22	11	12	16	9	6	11	6	12	13	14	11	22
3	11	10	9	5	6	6	5	12	21	37	25	27	21	34	20	8	15	10	6	4	9	6	21	13	14	37
4	5	3	4	6	9	6	7	10	24	25	23	29	15	16	8	12	12	9	5	13	11	8	9	6	11	29
5	4	7	7	8	3	9	5	18	22	22	33	28	26	20	19	17	11	11	7	9	9	7	11	11	14	33
6	7	5	5	8	7	5	3	21	16	32	26	32	19	27	22	17	14	13	7	5	9	8	8	7	13	32
7	4	3	4	5	14	9	8	18	21	36	37	29	23	27	27	28	34	22	8	3	10	6	10	6	16	37
8	9	4	4	11	9	7	(CM)	11	26	22	25	35	47	17	10	5	8	15	5	4	8	10	11	8	14	47
9	10	12	9	5	5	9	7	(CM)	17	22	32	33	30	22	29	25	20	24	9	9	5	4	12	9	16	33
10	11	11	9	11	10	3	12	13	14	30	33	28	29	32	39	18	27	14	8	9	13	21	17	27	18	39
11	4	10	8	16	9	8	6	6	26	37	27	20	17	23	17	12	16	13	15	17	10	12	7	4	14	37
12	2	7	6	3	11	10	5	9	11	8	13	22	21	18	16	10	24	14	7	5	4	10	10	7	11	24
13	16	7	9	10	8	3	7	11	21	32	24	34	27	25	23	16	14	11	7	4	2	13	13	13	15	34
14	7	15	7	3	5	5	9	12	23	40	27	22	5	8	12	8	15	7	10	10	12	19	9	8	12	40
15	9	13	9	6	7	6	6	23	21	26	27	15	20	18	14	21	15	10	7	6	10	4	4	15	13	27
16	11	7	8	4	11	(CM)	17	11	15	19	29	18	19	18	16	10	16	10	8	10	3	2	8	9	12	29
17	3	8	7	15	14	6	12	7	15	23	28	27	35	21	21	22	14	11	9	4	14	17	18	8	15	35
18	11	16	17	11	15	19	8	12	16	12	13	19	14	15	13	13	11	9	12	9	9	15	22	11	13	22
19	17	14	7	10	16	8	14	17	22	17	13	16	24	32	28	15	15	8	7	12	8	8	10	14	15	32
20	10	12	5	8	5	5	6	10	16	14	11	12	10	11	15	17	14	12	7	4	3	14	13	7	10	17
21	9	9	19	19	12	8	9	15	17	24	19	14	16	16	16	14	14	14	8	5	3	9	7	15	13	24
22	4	6	8	9	8	6	6	14	31	25	31	17	15	17	26	22	15	15	6	3	3	17	6	20	14	31
23	10	7	12	21	18	8	(CM)	22	9	11	13	13	18	17	27	13	15	14	7	4	5	10	6	7	12	27
24	24	16	10	9	19	16	17	10	21	23	24	14	13	16	12	11	9	9	8	9	8	10	10	5	13	24
25	4	4	5	5	4	4	5	15	14	17	15	16	14	16	19	11	11	9	5	3	19	6	9	6	10	19
26	5	5	3	4	6	6	5	9	24	30	33	28	34	26	(CM)	24	31	10	7	10	6	10	12	11	15	34
27	5	10	8	12	6	3	13	12	15	22	28	24	33	(CM)	15	20	18	16	11	8	6	5	6	26	14	33
28	13	9	3	3	5	6	5	10	15	16	35	42	10	10	10	14	10	(CM)	8	11	16	7	9	14	12	42
29	17	11	11	10	8	9	3	8	22	32	15	16	10	13	9	11	10	9	6	14	10	14	19	6	12	32
30	8	13	12	6	5	4	9	14	22	21	28	21	13	23	29	29	16	6	12	9	3	13	6	7	14	29
31	8	7	11	11	3	2	3	(CM)	15	18	23	29	16	12	23	11	13	6	2	5	10	13	11	11	11	29
AV	9	9	8	9	9	7	8	13	19	23	24	23	20	20	19	15	16	12	8	8	8	10	11	11	13	
PK	24	20	19	21	19	19	17	23	31	40	37	42	47	34	39	29	34	24	15	17	19	21	22	27		47

SIGMA HORIZ. WIND DIR. @ 30M
DEGREES

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	5	7	11	10	5	4	6	15	15	13	13	12	12	14	10	12	8	10	5	14	8	11	4	8	10	15
2	9	23	8	17	15	12	17	5	14	11	15	11	15	21	10	13	13	9	6	12	6	11	12	18	13	23
3	11	13	10	3	6	3	5	11	26	41	25	35	19	31	22	9	15	10	6	4	7	6	19	8	14	41
4	5	4	5	5	9	8	16	31	30	33	25	28	14	14	7	11	12	8	6	12	12	7	12	5	13	33
5	4	11	6	15	9	8	19	28	28	20	30	26	24	18	18	15	13	11	6	12	8	6	10	14	15	30
6	7	5	6	13	13	19	(CM)	25	18	31	30	30	18	25	20	15	14	14	7	4	7	8	7	7	15	31
7	5	3	4	4	9	8	8	19	19	36	35	27	20	24	28	27	31	21	8	2	12	13	13	6	16	36
8	10	5	8	(CM)	13	7	18	20	30	29	22	32	48	19	10	6	10	18	8	6	19	12	17	18	17	48
9	9	13	9	5	4	6	7	18	16	21	33	31	26	21	31	26	20	25	9	11	5	4	11	10	15	33
10	9	11	6	7	13	6	11	16	14	24	30	22	28	37	35	17	25	14	7	8	12	17	16	31	17	37
11	8	9	10	23	9	6	12	12	28	35	23	17	15	21	16	11	13	13	15	16	8	11	8	5	14	35
12	7	8	5	7	11	13	8	14	10	11	10	19	18	26	13	9	29	12	6	4	5	9	10	5	11	29
13	32	11	10	10	10	11	10	14	29	38	30	34	27	25	19	13	12	11	7	7	5	10	16	15	17	38
14	16	10	7	13	12	4	13	21	20	40	26	19	5	5	10	7	11	3	9	12	10	20	9	10	13	40
15	8	16	9	9	9	10	17	21	19	31	26	13	18	16	12	18	14	9	7	6	16	11	7	21	14	31
16	14	8	17	8	11	(CM)	26	9	13	17	26	16	18	16	14	9	16	9	9	9	16	10	11	7	13	26
17	6	9	10	16	14	6	16	11	15	22	31	28	43	15	18	18	13	10	8	4	21	20	(CM)	6	16	43
18	9	14	15	10	15	12	8	12	15	11	12	17	12	14	12	12	10	8	10	8	7	18	(CM)	16	12	18
19	16	10	7	7	16	13	17	15	22	15	12	15	23	29	28	14	13	7	7	10	6	7	9	15	14	29
20	9	13	10	7	19	7	7	14	16	13	11	10	10	10	14	16	13	11	6	2	2	24	10	13	11	24
21	14	14	15	23	17	5	10	17	18	24	17	14	15	15	13	12	13	12	7	5	3	7	7	23	13	24
22	6	8	9	10	8	8	6	12	30	26	35	15	13	16	25	21	15	13	6	3	2	21	3	9	13	35
23	10	4	12	14	26	15	40	17	8	10	11	11	17	15	24	12	13	12	6	3	6	22	13	24	14	40
24	(CM)	27	7	12	23	20	21	14	18	21	23	12	11	15	11	10	8	9	6	8	8	9	16	4	14	27
25	3	2	3	3	3	4	6	17	14	16	14	14	13	14	16	11	10	9	4	1	10	4	10	5	9	17
26	5	5	5	4	4	5	5	8	30	36	30	32	35	29	28	22	24	10	8	12	11	28	13	7	17	36
27	5	7	11	6	17	14	17	18	28	22	24	22	29	41	14	20	19	16	13	6	4	4	5	30	16	41
28	14	8	3	4	3	5	5	8	13	15	30	48	9	9	9	14	9	(CM)	7	9	32	6	7	16	12	48
29	16	13	13	7	15	8	4	8	24	34	14	15	10	12	8	12	9	7	4	7	22	15	15	5	12	34
30	7	11	16	6	6	6	12	22	38	24	31	20	12	25	26	27	15	5	9	12	4	32	6	5	16	38
31	13	9	10	(CM)	23	(CM)	24	(CM)	21	19	21	27	15	10	21	11	11	15	4	10	24	14	28	17	17	28
AV	10	10	9	10	12	9	13	16	21	24	23	22	19	19	17	15	15	11	7	8	10	13	11	12	14	
PK	32	27	17	23	26	20	40	31	38	41	35	48	48	41	35	27	31	25	15	16	32	32	28	31		48

SIGMA HORIZ. WIND DIR. @ 60M
DEGREES

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	8	10	17	15	2	2	6	15	11	12	12	10	11	14	8	10	7	10	3	9	6	3	5	3	9	17
2	10	5	3	(CM)	14	8	12	7	9	9	13	10	13	23	9	11	13	8	5	13	4	6	7	20	10	23
3	10	10	9	2	3	2	4	12	22	31	23	29	14	27	16	7	13	8	4	2	6	4	8	6	11	31
4	4	3	5	3	4	3	5	19	25	22	18	27	12	12	7	9	11	6	5	6	7	5	10	3	10	27
5	4	6	5	4	1	3	5	12	11	17	20	24	23	15	16	14	11	9	5	12	8	5	6	7	10	24
6	5	2	3	15	1	0	0	9	18	27	23	28	16	22	17	14	13	13	6	4	5	6	7	6	11	28
7	4	3	4	4	3	5	4	17	16	27	27	23	17	23	30	26	25	18	8	2	10	10	10	7	13	30
8	12	3	4	8	13	4	6	14	29	22	21	26	38	16	10	7	9	16	6	4	6	12	14	14	13	38
9	8	10	9	5	2	3	6	20	13	15	33	29	24	18	25	18	19	20	9	12	5	5	9	10	14	33
10	6	8	5	6	7	1	1	8	11	23	22	22	28	28	33	14	21	14	4	7	10	16	17	13	14	33
11	4	7	9	9	7	6	11	13	28	30	18	14	14	18	13	10	12	7	13	16	5	3	3	1	11	30
12	0	2	4	4	4	8	6	8	8	8	9	16	16	19	10	8	25	10	5	3	4	7	9	3	8	25
13	12	5	6	2	9	7	8	14	27	31	23	36	26	19	18	12	12	10	6	5	6	7	4	16	13	36
14	8	3	6	6	5	3	6	19	19	38	24	17	5	2	6	5	8	2	7	11	6	16	7	11	10	38
15	5	5	8	6	5	4	4	13	17	26	21	12	17	15	11	18	15	9	6	5	22	12	12	8	12	26
16	4	14	2	10	9	3	7	11	12	14	23	14	15	14	11	8	16	8	7	5	11	5	6	7	10	23
17	6	10	8	14	11	9	11	22	15	21	23	26	37	15	16	14	10	9	6	3	10	19	12	6	14	37
18	5	8	13	7	14	7	8	12	14	9	10	13	11	12	11	10	9	6	7	4	4	20	20	10	10	20
19	13	8	5	5	14	14	8	17	20	14	11	12	19	24	22	12	12	6	5	9	5	6	8	15	12	24.
20	6	10	11	5	12	7	7	13	16	13	10	9	9	10	14	14	11	10	5	2	1	12	15	7	10	16
21	5	8	10	13	13	7	6	13	16	20	16	12	13	12	11	10	12	11	6	5	2	4	5	11	10	20
22	8	6	9	9	7	5	4	11	27	24	29	13	12	15	23	17	13	13	6	2	2	5	2	3	11	29
23	6	2	6	4	4	11	17	10	7	9	9	11	16	15	23	11	12	11	5	2	4	17	9	11	10	23
24	28	23	7	11	11	19	4	7	15	18	22	10	10	14	10	9	8	8	5	7	7	8	13	3	12	28
25	4	2	4	5	5	7	11	12	13	14	12	13	12	13	14	9	9	7	3	1	5	2	10	5	8	14
26	4	3	6	4	5	5	6	6	28	35	26	34	32	28	24	19	18	8	7	9	11	3	12	5	14	35
27	5	6	7	8	6	0	5	8	22	17	24	21	25	39	14	17	17	15	11	5	3	3	3	10	12	39
28	10	4	3	5	6	4	4	7	11	14	30	37	7	8	8	14	8	9	6	7	16	6	4	9	10	37
29	14	7	9	1	7	7	4	5	26	25	12	13	9	12	7	10	8	6	2	2	21	8	16	5	10	26
30	6	10	17	5	10	9	5	3	16	29	23	21	12	23	24	25	15	5	9	19	8	16	6	4	13	29
31	7	4	0	9	9	5	6	11	25	17	20	25	15	10	18	9	11	6	3	5	8	7	27	27	12	27
AV	7	7	7	7	7	6	6	12	18	20	20	20	17	17	15	13	13	10	6	6	7	8	10	9	11	
-PK	28	23	17	15	14	19	17	22	29	38	33	37	38	39	33	26	25	20	13	19	22	20	27	27		39

TEMPERATURE @ 10M
DEGREE C

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	16	16	15	14	14	15	17	19	22	22	25	26	27	28	24	24	22	23	22	20	19	18	17	16	20	28
2	14	13	14	13	13	14	16	15	17	18	21	23	24	24	23	22	26	24	22	17	14	14	14	14	18	26
3	14	14	14	13	13	13	15	18	21	24	24	26	27	27	26	23	26	24	23	21	19	18	17	17	20	27
4	17	16	16	15	16	16	17	19	23	24	26	28	26	22	21	23	23	22	21	19	17	17	17	16	20	28
5	15	14	14	14	14	14	16	19	22	25	27	28	29	29	29	29	28	27	26	23	22	20	19	18	22	29
6	18	17	17	16	14	14	16	19	22	24	27	28	29	31	31	31	31	29	27	26	22	21	21	19	23	31
7	18	18	17	17	17	16	18	22	24	27	27	29	30	31	32	32	31	31	28	24	22	21	20	19	24	32
8	18	18	19	17	17	16	18	21	25	28	29	31	32	32	27	24	26	29	27	23	22	21	19	19	23	32
9	19	19	19	18	18	17	19	23	25	27	29	29	32	29	32	31	33	31	28	24	23	22	21	19	25	33
10	21	19	19	18	17	16	17	21	24	26	27	29	30	31	32	31	31	30	26	23	20	20	17	18	23	32
11	17	17	17	16	16	16	17	17	22	26	25	26	28	29	27	26	27	21	18	16	14	14	14	14	20	29
12	14	14	13	13	14	13	14	15	14	16	17	21	22	24	23	19	22	22	20	18	17	15	14	14	17	24
13	13	13	13	12	11	11	12	13	17	19	23	25	26	26	28	28	28	27	26	22	20	19	17	16	19	28
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16	17	17	15	15	14	14	16	18	22	24	27	29	29	29	28	26	28	27	26	22	20	19	18	17	22	29
17	16	17	17	16	14	13	16	16	18	22	25	27	28	28	29	30	29	28	27	23	22	21	18	17	22	30
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22	14	14	13	11	11	9	12	15	19	23	26	27	27	27	28	28	27	27	24	21	18	17	18	16	20	28
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24	14	14	13	13	12	12	13	16	21	25	27	26	26	27	26	22	19	21	20	18	17	16	14	14	18	27
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26	15	15	14	13	13	13	14	18	22	25	27	27	29	27	28	29	28	27	26	22	19	17	16	16	21	29
27	17	15	14	15	15	13	13	17	21	26	27	29	29	29	28	29	28	28	26	22	20	19	18	17	21	29
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31	14	12	12	12	12	11	13	15	20	24	27	27	27	25	28	27	27	26	24	21	19	17	16	15	20	28
AV	16	15	15	14	14	14	15	18	21	24	25	27	27	27	26	26	26	25	23	20	19	18	17	16	20	
PK	21	19	19	18	18	17	19	23	25	28	29	31	32	32	32	32	33	31	28	26	23	22	21	19		33
MN	13	12	12	11	11	9	12	13	14	16	17	21	18	17	16	16	18	17	16	14	14	14	13	13		

MONTHLY MINIMUM = 9

TEMPERATURE @ 30M
DEGREE C

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	17	17	16	15	15	16	16	18	19	20	22	23	23	24	23	23	21	22	21	20	18	18	17	17	19	24
2	16	14	14	13	13	15	17	16	16	18	19	21	22	21	22	22	24	23	22	17	14	14	15	14	18	24
3	14	14	14	13	13	14	14	17	20	23	23	24	26	26	24	23	24	24	23	21	20	18	17	17	20	26
4	17	17	17	17	17	17	17	19	22	23	24	27	25	22	21	22	22	21	20	18	18	17	17	16	20	27
5	16	16	13	13	13	13	14	17	21	23	25	27	27	28	27	27	26	26	25	23	22	20	18	17	21	28
6	16	16	17	17	16	14	16	18	20	23	24	26	27	28	29	28	29	28	28	26	23	21	21	20	22	29
7	19	19	18	18	18	17	19	22	23	25	26	27	28	29	31	31	30	29	28	26	24	22	21	19	24	31
8	19	20	20	19	18	18	19	21	24	28	28	29	31	30	27	26	27	28	26	24	23	22	21	21	24	31
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23	16	18	16	14	15	10	14	18	21	22	23	23	24	25	26	26	25	24	23	22	21	18	17	16	20	26
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AV	17	16	16	15	15	14	16	18	20	23	24	25	25	25	25	25	25	24	23	21	20	18	17	17	20	
PK	22	21	20	19	19	18	19	22	24	28	28	29	31	30	31	31	31	30	28	26	24	23	22	21		31
MN	13	13	13	12	12	10	12	13	15	16	17	21	18	17	16	16	18	18	17	15	14	14	14	13		

MONTHLY MINIMUM = 10

TEMPERATURE @ 60M
DEGREE C

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
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2	16	15	16	15	15	16	17	16	17	18	20	23	23	23	22	22	25	23	22	17	15	16	16	16	18	25
3	15	15	14	14	14	15	16	18	20	24	23	25	26	26	24	23	24	24	23	21	21	19	18	18	20	26
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6	18	18	18	17	16	15	16	18	21	23	26	27	28	29	29	29	29	28	27	26	23	21	21	20	23	29
7	19	19	18	18	18	18	19	22	24	25	26	28	28	29	30	31	29	29	28	26	24	22	21	20	24	31
8	21	21	21	20	19	18	20	22	25	28	28	29	31	30	27	26	27	28	26	24	23	22	22	22	24	31
9	21	21	20	19	20	19	21	23	24	26	28	28	31	28	31	30	31	29	28	26	24	23	22	21	25	31
10	22	21	21	19	18	16	18	21	23	24	26	27	28	29	30	29	29	29	26	23	20	20	18	18	23	30
11	18	18	17	17	17	17	17	19	22	24	24	25	27	28	26	24	26	22	19	16	14	14	14	14	20	28
12	14	14	14	15	16	15	14	16	14	15	17	20	21	23	22	18	21	21	19	18	17	15	14	14	17	23
13	14	14	14	13	12	12	12	13.	17	19	22	23	24	24	26	26	26	26	24	22	21	20	19	18	19	26
14	18	17	18	17	17	18	19	20	23	26	27	26	18	20	22	22	22	23	23	21	19	18	18	18	20	27
15	18	18	17	15	16	15	16	18	21	24	26	26	27	27	27	28	27	27	25	23	21	20	21	19	22	28
16	18	18	17	17	16	16	16	18	21	23	26	27	28	28	26	26	27	26	25	23	21	20	19	18	22	28
17	18	18	18	17	16	14	17	17	18	22	23	26	27	27	28	28	27	27	26	24	23	22	19	18	22	28
18	19	18	17	14	15	16	16	18	21	23	24	25	26	27	27	26	24	21	19	21	19	18	17	17	20	27
19	16	16	15	14	13	13	14	17	20	21	21	22	22	24	25	24	24	23	22	21	18	17	14	14	19	25
20	14	13	13	13	13	13	14	17	19	21	22	22	22	22	23	24	23	23	22	21	20	18	17	16	19	24
21	15	16	16	15	15	16	17	18	21	24	24	25	25	26	26	26	27	26	24	22	21	19	18	18	21	27
22	16	16	14	13	13	11	13	15	18	22	24	24	26	26	27	27	26	26	24	22	22	21	20	18	20	27
23	18	19	17	16	17	14	16	18	21	22	23	24	25	26	26	26	26	24	23	22	21	18	17	17	21	26
24	17	16	16	16	15	14	16	18	21	24	25	25	25	26	25	22	18	20	19	18	17	16	16	15	19	26
25	14	14	14	14	14	14	16	18	22	23	24	24	25	26	25	24	24	23	22	21	19	19	17	17	20	26
26	17	16	16	16	16	16	17	18	21	24	26	26	27	26	27	28	27	26	25	23	21	19	18	18	21	28
27	18	17	17	17	16	14	15	18	22	25	26	27	27	27	27	28	26	27	25	22	21	20	19	18	22	28
28	17	17	17	16	16	16	17	19	22	24	26	28	24	23	17	20	21	22	19	15	16	16	16	16	19	28
29	15	13	14	15	14	14	14	16	19	22	22	23	19	17	16	16	18	18	17	18	17	16	15	14	17	23
30	16	15	15	13	13	12	13	16	18	21	22	23	22	24	26	25	23	18	17	18	18	17	16	16	18	26
31	16	14	14	14	13	13	14	17	20	23	25	26	26	24	27	26	26	25	23	21	21	19	18	17	20	27
AV	17	17	16	16	15	15	16	18	21	23	24	25	25	26	25	25	25	24	23	21	20	19	18	17	21	
PK	22	21	21	20	20	19	21	23	25	28	28	29	31	30	31	31	31	29	28	26	24	23	22	22		31
MN	14	13	13	13	12	11	12	13	14	15	17	20	18	17	16	16	18	18	17	15	14	14	14	14		

MONTHLY MINIMUM = 11

DELTA TEMPERATURE 60-10M
DEGREE C*100

CB-TRACT
TRAILER AA23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR' (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	17	-67	-167	83	39	139	-11	-178	-178	-172	-172	-222	-217	-206	-317	-172	-167	-128	-172	-28	28	-300	-67	-56	-112	139
2	78	6	83	111	133	144	61	39	-22	-33	-83	-128	-150	-167	-322	-333	-117	-100	-28	-67	50	78	78	50	-27	144
3	44	72	44	106	83	111	-117	-44	-61	-83	-194	-117	-194	-233	-106	-311	-117	-128	-67	-83	67	72	33	28	-50	111
4	61	150	89	128	-289	-28	6	-167	-317	-300	-322	-383	-128	-39	-28	-44	-56	-56	-33	0	28	56	28	72	-66	150
5	67	133	67	-61	-128	-83	-39	-78	-44	-117	-172	-183	-161	-244	-128	-133	-78	-50	-22	11	22	6	22	100	-54	133
6	78	67	-433	-17	61	6	-22	-44	-100	-150	-172	-178	-172	-156	-183	-133	-156	-122	-33	39	28	-22	-17	17	-76	78
7	-44	-28	-322	122	106	133	56	-67	-106	-144	-94	-178	-144	-133	-156	-161	-156	-128	-83	72	206	-122	33	-156	-62	206
8	-261	-294	128	217	-22	78	150	56	-22	-117	-150	-144	-144	-156	-56	128	122	-94	-33	128	172	150	133	44	0	217
9	117	-78	39	-11	50	-228	61	-28	-78	-100	-183	-194	-178	-156	-156	-122	-200	-133	-44	128	133	111	144	-28	-47	144
10	11	33	117	128	122	50	44	-6	-78	-128	-183	-189	-194	-172	-172	-161	-117	-106	-11	-50	-39	-28	0	44	-45	128
11	39	67	44	83	44	67	78	100	-56	-150	-106	-144	-183	-156	-172	-117	-167	50	28	-33	6	11	39	17	-25	100
12	17	33	106	106	133	117	56	0	-167	-111	-78	-161	-139	-172	-144	-89	-144	-128	-89	-89	0	-350	-22	17	-54	133
13	28	39	78	111	94	67	17	-17	-61	-39	-161	-172	-167	-183	-183	-194	-172	-133	-94	-11	72	122	206	150	-25	206
14	-172	-6	139	111	61	128	144	33	-56	-78	-183	-172	28	267	233	172	211	189	117	67	139	106	72	89	68	267
15	89	133	133	67	89	100	94	28	-44	-83	-94	-172	-178	-194	-172	-178	-161	-128	-78	50	100	61	89	133	-13	133
16	122	56	222	133	100	0	33	-33	-72	-83	-111	-178	-183	-200	-133	-83	-133	-83	-67	28	-383	67	17	50	-38	222
17	-11	-117	78	56	72	50	-22	-339	-106	-122	-206	-183	-194	-144	-200	-211	-178	-133	-94	56	78	28	50	150	-69	150
18	150	189	44	28	128	156	39	-44	-67	-72	-89	-111	-122	-122	-144	-172	-111	-44	50	106	144	128	56	22	6	189
19	-17	-67	-22	-22	67	61	72	17	-72	-128	-106	-111	-178	-172	-228	-183	-156	-117	-89	-83	-117	-272	-94	-28	-85	72
20	56	50	61	106	67	39	33	-33	-83	-139	-106	-172	-122	-156	-144	-189	-172	-150	-117	-28	106	-583	-911	-389	-124	106
21	89	128	194	172	72	100	94	-22	-144	-128	-144	-150	-167	-217	-222	-111	-161	-133	-78	6	-306	167	50	89	-34	194
22	111	122	72	150	150	122	-78	6	-28	-106	-172	-222	-228	-144	-156	-161	-183	-139	-94	-333	-339	-33	-117	133	-69	150
23	183	294	211	283	344	178	150	106	-61	-83	-111	-128	-167	-194	-156	-150	-167	-133	-83	-33	228	-350	-172	117	4	344
24	-406	-289	222	233	239	194	222	78	-61	-78	-139	-117	-128	-178	-144	-128	-156	-100	-328	-217	-211	-17	-11	72	-60	239
25	106	150	161	194	167	178	172	33	-111	-106	-267	-233	-161	-183	-333	-400	-356	-228	-78	-206	-306	-56	44	100	-72	194
26	94	72	44	117	211	178	161	-6	-72	-117	-172	-206	-250	-172	-194	-156	-117	-117	-83	78	150	-117	11	72	-25	211
27	-22	67	61	-11	83	44	-39	6	-89	-78	-222	-239	-356	-239	-194	-239	-161	-172	-78	-144	-311	39	-11	-100	-100	83
28	-394	-94	94	17	33	89	39	-78	-122	-361	-689	-289	-167	-172	28	-94	-83	-83	-50	0	33	56	89	128	-86	128
29	100	44	50	150	111	89	28	-39	-67	-133	-133	-133	-78	-100	-72	-39	-61	-56	17	133	83	72	44	100	5	150
30	83	28	111	78	89	122	89	-6	-33	-83	-128	-167	-94	-156	-206	-178	-122	150	133	233	311	289	261	144	40	311
31	178	194	133	94	150	106	89	144	-17	-94	-172	-172	-161	-67	-156	-122	-117	-78	-56	44	111	-139	-94	78	-5	194
AV	19	35	61	99	86	81	54	-19	-84	-120	-172	-179	-164	-152	-152	-144	-126	-91	-56	-7	9	-25	-1	41	-42	
PK	183	294	222	283	344	194	222	144	-17	-33	-78	-111	28	267	233	172	211	189	133	233	311	289	261	150		344
MN	-406	-294	-433	-61	-289	-228	-117	-339	-317	-361	-689	-383	-356	-244	-333	-400	-356	-228	-328	-333	-383	-583	-911	-389		

MONTHLY MINIMUM = -911

BAROMETRIC PRESSURE
MILLIBARS

CB-TRACT
TRAILER AB23
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	800	800	800	800	800	801	801	800	799	800	800	799	799	799	799	797	797	797	798	798	799	799	799	799	799	801
2	799	799	799	799	799	800	800	801	800	801	801	801	801	799	799	799	799	799	799	800	800	800	800	801	800	801
3	801	801	800	800	801	801	801	801	801	801	801	801	800	800	799	799	799	799	799	799	800	800	800	800	800	801
4	800	800	800	800	800	800	801	801	801	801	801	800	800	800	800	800	800	800	800	801	801	802	802	802	801	802
5	802	801	801	802	802	802	802	803	802	802	802	802	801	801	801	800	800	800	800	801	801	801	802	802	801	803
6	802	802	802	802	802	802	803	803	803	803	802	802	801	801	800	800	799	799	799	800	800	801	801	801	801	803
7	801	801	801	801	801	801	801	801	801	801	801	800	800	799	799	798	798	797	797	798	798	798	798	799	800	801
8	799	799	798	798	798	799	799	799	799	799	798	798	797	797	797	796	796	796	796	796	797	797	797	797	798	799
9	797	797	798	798	798	798	799	799	799	799	799	798	798	797	796	796	795	795	795	796	796	797	796	797	797	799
10	797	797	797	797	798	798	798	798	799	798	798	797	797	796	796	795	795	794	794	795	796	797	798	799	797	799
11	798	798	798	798	799	799	799	799	799	799	799	798	798	797	797	797	796	797	797	798	799	799	799	800	798	800
12	799	799	799	799	799	799	799	800	800	800	800	799	798	798	798	798	798	797	798	798	799	799	799	800	799	800
13	799	799	799	799	799	800	800	801	801	800	800	800	799	799	799	798	798	798	798	798	799	799	799	799	799	801
14	800	799	800	799	800	800	800	800	800	800	800	800	799	799	799	799	798	798	798	799	800	800	800	800	799	800
15	800	799	799	800	800	800	800	800	800	800	799	799	799	798	798	797	797	797	797	797	798	798	798	798	799	800
16	798	798	798	799	799	799	800	800	799	799	799	798	798	798	797	797	797	797	796	797	797	798	798	798	798	800
17	798	798	798	798	798	798	799	799	799	799	798	798	797	797	796	795	795	794	795	795	795	795	796	796	797	799
18	796	795	796	797	796	797	797	797	797	793	792	791	791	791	790	790	790	790	790	791	792	792	793	794	793	797
19	794	793	793	793	794	793	793	794	794	793	793	793	793	792	791	791	791	791	791	791	792	792	793	793	793	794
20	794	793	793	793	793	793	793	794	793	793	793	792	793	793	792	792	792	791	792	792	793	793	792	793	793	794
21	793	793	794	793	794	794	793	794	794	793	794	793	793	793	792	792	792	791	791	792	792	792	792	793	793	794
22	793	793	793	793	794	794	796	798	798	798	798	797	797	797	796	796	795	795	795	795	796	796	796	796	796	798
23	796	796	796	797	797	797	797	797	798	798	798	797	797	797	796	796	796	796	796	796	797	797	797	798	797	798
24	798	798	798	798	798	798	799	799	799	799	799	799	798	798	798	799	799	799	799	799	800	800	800	800	799	800
25	800	800	800	801	801	801	802	802	802	802	802	801	801	801	800	800	800	800	800	800	801	801	801	801	801	802
26	801	801	801	801	801	801	802	802	802	802	802	801	801	800	799	799	799	799	799	799	800	800	800	801	801	802
27	801	800	800	801	801	801	801	802	801	802	801	801	800	800	799	799	799	798	798	799	799	800	800	800	800	802
28	800	800	800	800	800	800	800	800	800	800	800	799	799	799	799	799	798	798	799	799	799	799	799	799	799	800
29	799	799	799	799	799	800	800	799	799	799	799	799	799	799	797	795	795	797	797	797	797	798	798	798	798	800
30	798	798	798	798	798	798	798	796	797	797	797	797	798	797	796	794	794	798	798	799	799	799	799	799	798	799
31	799	799	799	799	800	800	800	800	801	800	800	800	799	799	799	799	798	798	798	799	799	799	799	799	799	801
AV	798	798	798	798	799	799	799	799	799	799	799	798	798	798	797	797	797	797	797	797	798	798	798	798	798	
PK	802	802	802	802	802	802	803	803	803	803	802	802	801	801	801	800	800	800	800	801	801	802	802	802		803
MN	793	793	793	793	793	793	793	794	793	793	792	791	791	791	790	790	790	790	790	791	792	792	792	793		

MONTHLY MINIMUM = 790

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        PRECIPITATION                                                         CB-TRACT
        CM*100                                                                TRAILER AB23
                                                                              AUG   1983
                                                                              CATHEDRAL BLUFFS SHALE OIL CO.

                                           HOUR (LOCAL STANDARD TIME)

DAY   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24   TL PEAK

  1                                                                                                  ( )
  2                                  50                                  16                          66   50
  3                                                                                                  ( )
  4                                                                                                  ( )
  5                                                                                                  ( )
  6                                                                                                  ( )
  7                                                                                                  ( )
  8                                                                                                  ( )
  9                                                                                                  ( )
 10                                                                                                  ( )
 11                                                                                                  ( )
 12                                                                                                  ( )
 13                                                                                                  ( )
 14                                              10                                                  10   10
 15           6   6   8                                                                              21    8
 16                                                                                                  ( )
 17                                                                                                  ( )
 18                                                                                                  ( )
 19                                                                                          40  39   79   40
 20                                                                                                  ( )
 21                                                                                       3             3    3
 22                                                                                                  ( )
 23                                                                                                  ( )
 24                                                                                                  ( )
 25                                                                                                  ( )
 26                                                                                                  ( )
 27                                                                                                  ( )
 28                                                                                                  ( )
 29                                                                                                  ( )
 30                                                                      15  10                      26   15
 31                                                                                                  ( )

TL  ( ) ( )   6   6   8 ( ) ( ) ( )  50 ( ) ( )  10 ( ) ( ) ( ) ( ) ( )  32  10 ( ) ( )   3  40  39  204
PK            6   6   8              50          10                      16  10           3  40  39        50
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PRECIPITATION
CM*100

CB TRACT
MRI AD28
AUG 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1																	28								28
2								8	5											5	3				20
3																									
4															13										13
5																									
6																									
7																									
8																									
9																									
10																							5		5
11																		3	5	25	5				38
12																							13		13
13																									
14													43												43
15																									
16																									
17																							18		18
18			18	8													5								30
19																						13		8	20
20																									
21																									
22																									
23																									
24																									
25																									
26																									
27																						(OE)	(OE)	(OE)	
28	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	( )
29	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)										( )
30																			20						20
31																									
TL			18	8				8	5				43		13		33	3	25	30	8	13	36	8	( )

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STABILITY CLASS USING DT/DZ                                          CB-TRACT
DT 60-10M                                                            TRAILER AA23
WS 10M                                                                AUG  1983
                                                                     OCCIDENTAL OIL SHALE, INC.

                                          HOUR, (LOCAL STANDARD TIME)

DAY    1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  AVE


  1    E    D    A    F    E    F    E    A    B    B    B    B    B    B    B    B    B    A    A    D    E    A    D    D    C
  2    F    E    F    F    F    F    E    E  (   )  D    C    B    A    A    B    A    A    A    D    D    E    F    F    E    D
  3    E    E    E    F    F    F    B    D    D    C    A    A    B    A    A    B    A    B    D    C    E    E    E    E    D
  4    E    F    F    F    A    D    E    A    A    A    A    A    A    D    D    D    D    D    D    E    E    E    E    E    D
  5    E    F    E    D    A    C    D    C    D    A    A    A    B    B    B    B    C    D    E    E    E    E    E    F    D
  6    F    E    A    E    E    E    E    D    A    A    A    A    A    B    B    B    B    B    D    E    E    E    E    E    C
  7    D    D    B    F    F    F    E    D    A    A    B    A    B    B    A    A    A    A    C    E    F    A    E    A    C
  8    A    A    F    F    E    F  (   )  E    E    A    A    A    A    A    D    F    F    B    D    F    F    F    F    E    D
  9    F    C    E    E    E    B    E  (   )  C    A    A    A    A    A    A    A    A    A    D    F    F    F    F    D    C
 10    E    E    F    F    F    E    E    E    C    A    A    B    A    A    A    B    A    A    E    D    D    D    E    E    D
 11    E    E    E    F    E    E    F    F    D    A    A    B    B    B    B    B    B    E    E    D    E    E    E    E    D
 12    E    E    F    F    F    F    E    E    A    A    C    B    A    A    B    B    A    A    B    B    A    B    E    E    C
 13    E    E    F    F    F    E    E    E    D    D    A    A    A    A    B    B    B    B    B    E    E    F    F    F    D
 14    A    E    F    F    E    F    F    E    D    C    A    B    E    F    F    F    F    F    F    E    E    F    E    F    E
 15    F    F    F    E    F    F    F    E    D    C    B    B    B    B    B    B    B    B    C    E    F    E    F    F    D
 16    F    E    F    F    F  (   )  E    D    D    C    A    B    B    B    B    C    A    C    D    E    A    E    E    E    D
 17    E    A    F    E    E    E    E    A    A    A    A    A    A    B    B    B    B    B    B    E    F    E    E    F    C
 18    F    F    E    E    F    F    E    D    D    D    B    B    C    C    B    B    D    D    E    F    F    F    E    E    D
 19    E    D    E    E    E    E    E    E    D    A    B    B    B    A    B    B    B    B    B    C    B    C    B    D    C
 20    E    E    E    F    E    E    E    D    C    B    B    B    B    B    B    B    B    B    B    D    F    A    A    A    C
 21    F    F    F    F    E    F    F    E    A    A    B    B    B    B    B    B    B    B    C    E    B    F    E    F    D
 22    F    F    E    F    F    F    C    E    D    A    B    B    B    B    B    B    B    B    B    B    B    D    B    F    C
 23    F    F    F    F    F    F  (   )  F    D    C    B    C    B    B    B    B    B    B    C    D    F    A    A    F    D
 24    A    A    F    F    F    F    F    F    D    C    B    B    C    B    B    C    B    B    B    B    B    E    E    E    D
 25    F    F    F    F    F    F    F    E    B    B    B    B    B    B    B    B    B    B    C    B    B    D    E    F    D
 26    F    E    E    F    F    F    F    E    D    A    A    A    A    A  (   )  A    A    B    C    F    F    A    E    E    D
 27    E    E    E    E    F    E    D    E    B    C    A    B    A  (   )  B    B    B    A    C    B    B    E    E    A    C
 28    A    B    F    E    E    F    E    C    B    B    A    A    B    B    E    B    C  (   )  D    E    E    E    F    F    D
 29    F    E    E    F    F    F    E    D    D    A    B    A    C    B    D    D    D    D    E    F    F    E    E    F    D
 30    E    E    F    F    F    F    F    E    D    C    A    A    B    A    A    A    A    E    E    F    F    F    F    F    D
 31    F    F    F    F    F    F    F  (   )  E    B    A    A    B    D    A    B    A    C    D    E    F    A    B    F    D

AVE    E    E    E    F    E    E    E    D    C    B    B    B    B    B    B    B    B    B    C    D    E    D    E    E    D


  TOTAL OCCURRENCES:  A=129     B=162     C= 39     D= 70     E=171     F=164     HOURS MISSING=  9
```

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

NITRIC OXIDE (NO) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(8/01/83 TO 8/31/83)

CONCENTRATION MAX UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	1	2	1	1	1	1	1	2	2	2	1	2	1	2	2	1	1	
GT 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
60. - 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
55. - 60. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
50. - 55. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
45. - 50. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
40. - 45. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
35. - 40. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
30. - 35. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
25. - 30. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
20. - 25. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
15. - 20. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
10. - 15. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
5. - 10. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 5. :	29	22	10	20	33	52	83	75	77	83	97	41	23	20	26	29	9 :	729
TOTAL :	29	22	10	20	33	52	83	75	77	83	97	41	23	20	26	29	9	729
MEAN CONC.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 = NO OBSERVATIONS

(10/19/83-RPI)

```
                NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

      OXIDES OF NITROGEN (NOX)                                                       CATHEDRAL BLUFFS SHALE OIL

                         TRAILER   AH23      PERIOD( 8/01/83 TO  8/31/83)

                                                  WIND DIRECTION
                    N  NNF   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
CONCENTRATION
    MAX             3    3    3    3    3    5    3    5    5    3    3    3    3    3    5    3    3
  UG/M**3

                .......................................................................................
   GT   65. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  60. - 65. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  55. - 60. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  50. - 55. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  45. - 50. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  40. - 45. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  35. - 40. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  30. - 35. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  25. - 30. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  20. - 25. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  15. - 20. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  10. - 15. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
   5. - 10. :       0    0    0    0    0    1    0    1    2    0    0    0    0    0    1    0    0 :     5
   LT    5. :      29   22   10   20   33   51   83   74   75   83   97   41   23   20   25   29    9 :   724
    TOTAL   :      29   22   10   20   33   52   83   75   77   83   97   41   23   20   26   29    9     729
                .......................................................................................

    MEAN            1    1    1    1    1    1    1    1    1    1    1    1    1    1    1    1    1       1
    CONC.

                0 = NO OBSERVATIONS
```

(10/19/83-RPI)

```
              NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

      NITROGEN DIOXIDE (NO2)                                                              CATHEDRAL BLUFFS SHALE OIL

                               TRAILER    AB23       PERIOD( 8/01/83 TO  8/31/83)

                                                          WIND DIRECTION
                   N   NNE   NE   ENE   E   ESE   SE   SSE    S   SSW   SW   WSW   W   WNW   NW   NNW CALM   TOTAL
  CONCENTRATION
      MAX          3    1     3    3    3    5     3    5     5    3     3    3    1    3     5    3    3
    UG/M**3
             ..........................................................................................................
     GT   65. :    0    0     0    0    0    0     0    0     0    0     0    0    0    0     0    0    0 :     0
   60. -  65. :    0    0     0    0    0    0     0    0     0    0     0    0    0    0     0    0    0 :     0
   55. -  60. :    0    0     0    0    0    0     0    0     0    0     0    0    0    0     0    0    0 :     0
   50. -  55. :    0    0     0    0    0    0     0    0     0    0     0    0    0    0     0    0    0 :     0
   45. -  50. :    0    0     0    0    0    0     0    0     0    0     0    0    0    0     0    0    0 :     0
   40. -  45. :    0    0     0    0    0    0     0    0     0    0     0    0    0    0     0    0    0 :     0
   35. -  40. :    0    0     0    0    0    0     0    0     0    0     0    0    0    0     0    0    0 :     0
   30. -  35. :    0    0     0    0    0    0     0.   0     0    0     0    0    0    0     0    0    0 :     0
   25. -  30. :    0    0     0    0    0    0     0    0     0    0     0    0    0    0     0    0    0 :     0
   20. -  25. :    0    0     0    0    0    0     0    0     0    0     0    0    0    0     0    0    0 :     0
   15. -  20. :    0    0     0    0    0    0     0    0     0    0     0    0    0    0     0    0    0 :     0
   10. -  15. :    0    0     0    0    0    0     0    0     0    0     0    0    0    0     0    0    0 :     0
    5. -  10. :    0    0     0    0    0    1     0    1     2    0     0    0    0    0     1    0    0 :     5
     LT    5. :   29   22    10   20   33   51    83   74    75   83    97   41   23   20    25   29    9 :   724
      TOTAL   :   29   22    10   20   33   52    83   75    77   83    97   41   23   20    26   29    9     729
             ..........................................................................................................
      MEAN         0    0     1    0    0    0     0    0     1    0     1    0    0    0     1    0    0       0
      CONC.

             0 = NO OBSERVATIONS
```

(10/19/83-RPI)

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

OZONE (O3) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(8/01/83 TO 8/31/83)

CONCENTRATION MAX UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	119	113	101	94	90	88	92	101	103	107	105	99	88	98	107	105	80	
GT 140. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
130. - 140. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
120. - 130. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
110. - 120. :	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	2
100. - 110. :	3	2	1	0	0	0	0	2	3	3	1	0	0	0	2	1	0 :	18
90. - 100. :	7	1	1	1	2	0	1	2	4	4	21	10	0	5	4	8	0 :	71
80. - 90. :	8	6	2	6	2	6	7	5	10	12	15	10	10	6	10	14	1 :	130
70. - 80. :	4	7	3	3	4	2	20	19	17	20	17	11	7	4	4	6	4 :	152
60. - 70. :	2	2	1	2	11	22	33	28	22	24	31	2	2	1	3	3	2 :	191
50. - 60. :	2	2	0	4	8	12	19	8	10	13	10	5	2	2	2	0	2 :	101
40. - 50. :	1	1	2	4	5	7	4	7	4	3	4	2	1	1	0	1	0 :	47
30. - 40. :	0	0	0	1	0	1	0	2	5	4	0	1	0	1	0	0	0 :	15
20. - 30. :	0	0	0	0	1	1	0	1	2	0	2	1	1	0	0	1	0 :	10
LT 20. :	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0 :	2
TOTAL :	28	22	10	21	33	51	84	75	77	83	102	42	23	20	25	34	9	739
PERCENT	4.	3.	1.	3.	4.	7.	11.	10.	10.	11.	14.	6.	3.	3.	3.	5.	1.	100.

0 = NO OBSERVATIONS

```
                NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

      CARBON MONOXIDE (CO)                                                        CATHEDRAL BLUFFS SHALE OIL

                            TRAILER   AB23       PERIOD( 8/01/83 TO  8/31/83)
                                                        WIND DIRECTION
                      N   NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
 CONCENTRATION
      MAX            57   57   68   57   57   68   80   68   68   68   68   57   68   57   57   68   57
    UG/M**3
                 ...................................................................................................

     GT 1300. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  1200. -1300. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  1100. -1200. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  1000. -1100. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
   900. -1000. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
   800. - 900. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
   700. - 800. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
   600. - 700. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
   500. - 600. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
   400. - 500. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
   300. - 400. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
   200. - 300. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
   100. - 200. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
     LT  100. :      29   22   10   21   33   51   84   75   77   83   97   41   23   20   28   34    9 :   737
      TOTAL   :      29   22   10   21   33   51   84   75   77   83   97   41   23   20   28   34    9     737
                 ...................................................................................................

      MEAN           42   38   42   41   44   43   44   43   41   38   38   37   41   43   42   42   38      41
      CONC.

                0 = NO OBSERVATIONS
```

```
                 NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

       SULFUR DIOXIDE (SO2)                                                        CATHEDRAL BLUFFS SHALE OIL

                          TRAILER    A823       PERIOD( 8/01/83 TO  8/31/83)
                                                       WIND DIRECTION
                      N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
 CONCENTRATION
      MAX            10    7    7   10   13   10   13   13   13   13   13   10   15   10   13   10   10
    UG/M**3
                ................................................................................................
    GT    13. :       0    0    0    0    1    0    1    1    1    2    6    0    1    0    1    0    0 :     14
   12. -  13. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
   11. -  12. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
   10. -  11. :       2    0    0    1    2    2    3    6    5    8   10    2    3    3    4    1    1 :     53
    9. -  10. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    8. -   9. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    7. -   8. :       4    2    1    1    4    4    3    5    6    8    5    3    2    3    3    3    0 :     57
    6. -   7. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    5. -   6. :       4    5    0    3    6    8   12    8   13    6   15    6    3    1    4    4    1 :     99
    4. -   5. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    3. -   4. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    2. -   3. :       3    2    3    1    4    6   20   14    8   10    7    4    3    5    6    8    1 :    105
    1. -   2. :       0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    LT     1. :      14   11    6   15   16   32   45   41   43   49   55   26   11    8   10   17    6 :    405
     TOTAL    :      27   20   10   21   33   52   84   75   76   83   98   41   23   20   28   33    9      733
                ................................................................................................

     MEAN             3    2    1    1    3    2    2    2    2    2    3    2    3    3    4    2    2       2
     CONC.

                0 = NO OBSERVATIONS
```

(10/19/83-RPI)

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

HYDROGEN SULFIDE (H2S) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(8/01/83 TO 8/31/83)

CONCENTRATION UG/M**3		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM		TOTAL
MAX		6	5	5	6	5	8	5	6	6	6	6	5	5	5	8	6	4		
GT 13.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
12. - 13.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
11. - 12.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
10. - 11.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
9. - 10.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
8. - 9.	:	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	:	2
7. - 8.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
6. - 7.	:	1	0	0	1	0	0	0	1	1	1	1	0	0	0	1	3	0	:	10
5. - 6.	:	8	6	1	2	3	1	2	4	6	9	7	1	2	3	3	2	0	:	60
4. - 5.	:	7	3	1	2	2	1	6	9	6	6	13	3	1	2	6	8	2	:	78
3. - 4.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
2. - 3.	:	5	3	1	0	5	7	15	8	7	8	11	2	8	4	6	5	1	:	96
1. - 2.	:	0	2	2	4	5	6	9	8	10	13	17	9	3	6	1	4	0	:	99
LT 1.	:	8	8	4	12	18	36	52	45	46	46	53	27	9	5	9	12	5	:	395
TOTAL	:	29	22	9	21	33	52	84	75	76	83	102	42	23	20	27	34	8		740
MEAN CONC.		3	2	1	1	1	0	1	1	1	1	1	0	1	2	2	2	1		1

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

10 METER LEVEL CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(8/01/83 TO 8/31/83)

WIND SPEED MAX METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
	3	3	3	2	2	2	4	5	5	6	7	4	4	4	3	4	0	
GT 11. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
8. - 11. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
5. - 8. :	0	0	0	0	0	0	0	1	4	4	1	0	0	0	0	0	0 :	10
3. - 5. :	1	4	2	0	0	0	3	14	15	21	32	13	2	4	1	5	0 :	117
1. - 3. :	16	8	3	12	19	39	60	43	40	33	50	16	15	13	19	21	0 :	407
LT 1. :	12	10	5	9	14	13	21	17	18	25	19	13	6	3	8	8	0 :	201
TOTAL :	29	22	10	21	33	52	84	75	77	83	102	42	23	20	28	34	0	735
PERCENT	4.	3.	1.	3.	4.	7.	11.	10.	10.	11.	14.	6.	3.	3.	4.	5.	0.	100.

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

30 METER LEVEL CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(8/01/83 TO 8/31/83)

WIND SPEED METERS/SEC		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX		4	4	4	3	3	4	7	7	8	10	6	5	7	5	4	6	0	
GT	11. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
8. -	11. :	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0 :	5
5. -	8. :	0	0	0	0	0	0	6	9	12	20	10	2	1	2	0	2	0 :	64
3. -	5. :	5	7	2	2	5	21	34	22	17	24	37	12	5	11	3	5	0 :	212
1. -	3. :	15	7	4	13	23	39	44	28	20	14	22	14	14	14	22	13	0 :	306
LT	1. :	12	8	6	6	7	10	11	8	16	19	13	9	8	5	4	5	0 :	147
TOTAL	:	32	22	12	21	35	70	95	67	67	80	82	37	28	32	29	25	0	734
PERCENT		4.	3.	2.	3.	5.	10.	13.	9.	9.	11.	11.	5.	4.	4.	4.	3.	0.	100.

0 = NO OBSERVATIONS

(10/19/83-RPI)

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

60 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(8/01/83 TO 8/31/83)

WIND SPEED METERS/SEC		WIND DIRECTION																	
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX		4	4	4	4	4	5	7	8	8	12	7	6	8	5	4	6	0	
GT 11.	:	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0 :	2
8. - 11.	:	0	0	0	0	0	0	0	3	3	3	0	0	1	0	0	0	0 :	10
5. - 8.	:	0	0	0	0	0	4	9	13	21	26	18	5	0	3	0	2	0 :	101
3. - 5.	:	7	8	3	4	4	16	41	33	16	20	36	10	6	10	9	6	0 :	229
1. - 3.	:	12	9	4	12	21	26	37	33	14	18	20	12	15	16	20	17	0 :	286
LT 1.	:	3	9	3	5	3	13	7	10	11	10	5	11	11	5	4	5	0 :	115
TOTAL	:	22	26	10	21	28	59	94	92	65	79	79	38	33	34	33	30	0	743
PERCENT		3.	3.	1.	3.	4.	8.	13.	12.	9.	11.	11.	5.	4.	5.	4.	4.	0.	100.

0 = NO OBSERVATIONS

(10/19/83-RPI)

```
FIVE MAXIMUM SLIDING AVERAGE                               C-B TRACT
UG/M**3                                                    SITE AB23
                                                           AUG  1983
                                                           CATHEDRAL BLUFFS SHALE OIL CO.

     COMPONENT    AVG. TIME      RANK      DAY     HOUR(BEG)    VALUE

       SO2          3 HR
                                   1        14         6          13.1
                                   2        16         2          13.1
                                   3        14        10          12.2
                                   4        14        15          11.3
                                   5        15         2          11.3

       SO2         24 HR
                                   1        15        22          10.8
                                   2        14         6          10.5
                                   3        10        16           7.7
                                   4         9        14           7.0
                                   5        16        22           6.8

       CO           1 HR
                                   1         1         7          80.0
                                   2         1         1          70.0
                                   3         1         2          70.0
                                   4         1         3          70.0
                                   5         1         4          70.0

       CO           8 HR
                                   1         1         1          70.0
                                   2         8        13          60.0
                                   3         4         2          60.0
                                   4         8        24          60.0
                                   5         5         1          60.0

       O3           1 HR
                                   1         6        17         119.7
                                   2         6        18         113.8
                                   3         5        14         107.9
                                   4        18        19         107.9
                                   5         5        13         105.9

       PART        24 HR
                                   1        10         1          27.8
                                   2        22         1          21.9
                                   3        26         1          21.5
                                   4        18         1          17.8
                                   5         6         1          17.4
```

DATA ACQUISITION INSTRUMENT EFFICIENCY
CATHEDRAL BLUFFS SHALE OIL COMPANY
A.Q. TRAILER AB23

AUGUST 1983

GASEOUS PARAMETERS

NOX: 100 %

NO: 100

NO2: 100

O3: 100

CO: 100

SO2: 100

H2S: 100

PARTICULATES: 100 %

METEOROLOGICAL PARAMETERS

WIND SPEED
10 M: 100 %
30 M: 100
60 M: 100

WIND DIRECTION
10 M: 100
30 M: 100
60 M: 100

SIGMA HORIZONTAL WIND DIRECTION
10 M: 100
30 M: 100
60 M: 100

TEMPERATURE
10 M: 100
30 M: 100
60 M: 100

DELTA TEMPERATURE: 100

RELATIVE HUMIDITY: 100

SOLAR RADIATION: 100

BAROMETRIC PRESSURE: 100

PRECIPITATION: 100

SEPTEMBER

OCTOBER

NOVEMBER

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NITRIC OXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	1	0	0	0	1	0	0	0	0	1	1	1	0	1	1	0	0	1	0	1	1	1	1	1	1	1
2	0	1	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	1	1	1	0	0	1	1	1
3	0	1	1	0	0	0	0	1	1	1	1	1	0	0	1	1	0	1	1	1	2	1	0	2	1	2
4	1	1	0	1	1	0	0	1	0	1	1	1	1	1	0	1	1	1	0	0	1	1	1	1	1	1
5	0	1	1	0	1	0	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	0	1	1	1
6	0	1	0	1	1	0	1	1	1	1	1	0	0	0	1	1	0	1	1	1	0	0	0	1	1	1
7	1	0	0	0	0	0	0	1	1	1	0	1	0	0	1	1	0	0	0	1	0	1	0	2	1	2
8	0	1	1	0	1	1	1	1	0	1	1	0	1	0	0	0	1	0	1	1	1	1	0	2	1	2
9	1	1	0	0	1	0	0	1	1	1	1	1	1	0	1	0	1	0	1	1	0	0	0	2	1	2
10	0	1	1	0	1	0	1	1	1	1	1	0	0	0	0	0	1	1	1	1	0	0	0	1	1	1
11	1	1	1	0	1	0	1	1	0	0	0	0	0	0	1	1	0	1	1	1	1	1	0	1	1	1
12	0	1	0	1	0	0	0	1	0	0	(CA)	(CA)	(CA)	(CA)	1	2	1	1	1	0	1	2	1	1	1	2
13	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	0	2	1	2
14	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	0	2	1	2
15	1	0	1	1	1	1	1	1	1	0	1	1	0	0	1	1	0	0	1	1	0	1	1	1	1	1
16	0	1	1	1	1	0	1	1	1	1	0	0	0	1	0	0	0	0	1	1	0	1	0	1	1	1
17	0	0	0	0	0	1	0	0	0	1	1	0	0	1	1	0	0	0	0	0	0	1	0	1	0	1
18	1	0	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1
19	0	0	0	0	0	1	1	1	1	0	1	0	0	1	0	0	1	0	1	0	0	0	0	1	0	1
20	1	1	0	1	1	0	0	0	1	1	0	0	0	1	0	0	1	0	0	0	0	1	0	2	1	2
21	0	0	1	1	1	0	0	1	1	1	1	0	0	0	0	0	0	1	1	1	0	1	1	1	1	1
22	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1	0	1	1	0	1
23	0	1	1	1	0	1	0	0	0	1	1	1	0	1	0	1	1	0	0	1	0	0	1	1	1	1
24	1	1	0	1	1	1	1	1	1	1	0	0	1	1	1	0	0	1	0	0	1	0	0	1	1	1
25	1	0	1	1	0	1	0	1	1	0	0	1	0	1	1	0	1	1	0	0	0	0	1	1	1	1
26	0	1	0	0	0	1	1	1	0	1	(CA)	1	1	1	0	0	1	0	1	1	0	1	1	1	1	1
27	1	1	1	0	0	1	1	0	0	1	1	0	0	1	0	0	0	1	1	1	0	0	1	1	1	1
28	0	1	1	1	1	1	1	0	0	1	1	0	0	0	1	0	1	1	1	1	0	0	0	1	1	1
29	0	1	0	1	0	0	1	1	1	0	1	1	0	0	0	0	0	1	1	1	0	1	0	2	1	2
30	0	1	1	0	0	1	1	0	0	0	1	0	1	1	1	0	1	0	1	1	0	0	1	1	1	1
AV	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	0	2	1	
PK	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	2	1	2		2

OXIDES OF NITROGEN
(UG/M3)

CB-TRACT
TRAILER AB23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	2	2	0	2	2	2	2	0	2	2	0	2	2	2	2	2	0	0	0	4	4	4	2	2	2	4
2	2	2	2	2	2	2	4	4	4	0	2	2	2	2	2	2	2	0	2	2	0	2	2	2	2	4
3	4	2	2	2	2	2	2	2	2	6	2	4	2	2	2	2	2	2	0	0	2	4	4	2	2	6
4	4	2	2	2	4	4	2	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4
5	2	2	0	0	0	2	2	2	2	2	0	0	0	2	2	2	0	0	0	2	0	0	2	2	1	2
6	2	2	0	0	2	2	2	2	4	2	2	2	2	2	2	0	0	0	2	0	2	0	2	0	1	4
7	4	2	2	0	0	0	0	2	0	2	2	0	0	2	0	2	2	4	2	2	0	2	2	2	1	4
8	4	2	2	4	2	2	2	2	2	2	4	2	2	2	2	0	2	0	4	2	2	2	2	2	2	4
9	0	2	0	2	0	2	2	2	2	2	2	2	2	2	0	2	2	0	2	0	0	2	2	2	1	2
10	4	4	2	2	2	4	2	2	4	4	2	2	2	2	0	2	0	2	2	0	0	0	2	0	2	4
11	2	0	2	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	2
12	2	0	0	2	2	2	2	0	2	0	(CA)	(CA)	(CA)	(CA)	2	2	2	2	2	2	2	2	0	0	1	2
13	2	2	0	2	2	0	0	2	2	2	2	2	2	0	2	0	0	0	0	0	0	0	0	0	1	2
14	2	0	0	0	4	2	2	4	2	2	2	2	2	0	0	2	2	0	2	0	2	0	0	0	1	4
15	4	2	2	2	0	2	0	2	0	2	2	2	2	2	2	2	0	0	0	2	2	0	0	0	1	4
16	2	2	2	0	2	4	0	2	2	2	2	2	0	0	0	0	2	2	2	0	2	2	2	2	1	4
17	2	2	2	0	0	2	0	2	0	0	2	0	2	2	2	2	2	2	0	2	0	2	0	0	1	2
18	0	2	2	2	0	0	2	2	2	2	2	2	2	2	2	2	2	0	2	0	0	2	2	2	1	2
19	2	2	2	2	2	2	2	2	0	4	4	2	2	2	4	2	2	2	2	2	2	2	2	2	2	4
20	4	2	0	2	2	0	2	2	2	2	2	2	2	0	0	2	0	0	0	2	2	0	0	0	1	4
21	2	2	0	0	2	2	2	2	0	2	0	2	2	2	2	0	0	0	2	2	0	2	2	0	1	2
22	2	2	2	2	2	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	2	2	0	0	1	2
23	2	0	2	2	2	2	0	2	2	2	2	2	2	2	2	4	2	0	2	4	0	2	2	2	2	4
24	2	2	2	2	2	0	0	2	2	4	0	2	2	2	2	2	2	2	2	0	2	2	2	0	2	4
25	2	2	0	0	2	0	0	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	0	1	2
26	2	2	2	2	2	2	2	2	4	2	(CA)	4	2	4	2	2	2	2	2	2	4	2	2	2	2	4
27	4	2	2	2	4	2	4	4	2	2	2	4	2	4	0	4	2	2	2	0	0	0	2	4	2	4
28	2	2	2	2	2	2	2	2	4	2	2	2	2	2	2	2	0	2	2	2	0	4	0	4	2	4
29	2	2	2	2	2	2	2	4	2	2	2	2	0	2	2	2	2	2	4	2	2	2	2	2	2	4
30	4	2	4	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	0	2	2	2	2	2	2	4
AV	2	2	1	1	2	2	1	2	2	2	2	2	1	2	1	2	1	1	1	1	1	2	1	1	2	
PK	4	4	4	4	4	4	4	4	4	6	4	4	2	4	4	4	2	4	4	4	4	4	4	4		6

NITROGEN DIOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	2	0	2	0	2	2	0	2	0	0	0	2	0	0	2	0	0	0	2	2	2	0	0	1	2
2	2	0	2	2	2	2	2	2	2	0	2	2	2	2	2	0	2	0	0	0	0	2	2	0	1	2
3	4	0	0	2	2	2	2	0	0	4	0	2	2	2	0	0	2	0	0	0	0	2	4	0	1	4
4	2	0	2	0	2	4	2	2	4	2	0	0	0	0	2	0	0	0	2	2	0	0	0	0	1	4
5	2	0	0	0	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	2	0	0	2	0	0	2
6	2	0	0	0	0	2	0	0	2	0	0	2	2	2	0	0	0	0	0	0	2	0	2	0	1	2
7	2	2	2	0	0	0	0	0	0	0	2	0	0	2	0	0	2	4	2	0	0	0	2	0	1	4
8	4	0	0	4	0	0	0	0	2	0	2	2	0	2	2	0	0	0	2	0	0	0	2	0	1	4
9	0	0	0	2	0	2	2	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2	2	0	1	2
10	4	2	0	2	0	4	0	0	2	2	0	2	2	2	0	2	0	0	0	0	0	0	2	0	1	4
11	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12	2	0	0	0	2	2	2	0	2	0	(CA)	(CA)	(CA)	(CA)	0	0	0	0	0	2	0	0	0	0	1	2
13	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
14	2	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
15	2	2	0	0	0	0	0	0	0	2	0	0	2	2	0	0	0	0	0	0	2	0	0	0	0	2
16	2	0	0	0	0	4	0	0	0	0	2	2	0	0	0	0	2	2	0	0	2	0	2	0	1	4
17	2	2	2	0	0	0	0	2	0	0	0	0	2	0	0	2	2	2	0	2	0	0	0	0	1	2
18	0	2	0	0	0	0	0	2	2	2	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
19	2	2	2	2	2	0	0	0	0	4	2	2	2	0	4	2	0	2	0	2	2	2	2	0	1	4
20	2	0	0	0	0	0	2	2	0	0	2	2	2	0	0	2	0	0	0	2	2	0	0	0	1	2
21	2	2	0	0	0	2	2	0	0	0	0	2	2	2	2	0	0	0	0	0	0	0	0	0	1	2
22	2	0	2	2	2	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	1	2
23	2	0	0	0	2	0	0	2	2	0	0	0	2	0	2	2	0	0	2	2	0	2	0	0	1	2
24	0	0	2	0	0	0	0	0	0	2	0	2	0	0	0	2	2	0	2	0	0	2	2	0	1	2
25	0	2	0	0	2	0	0	0	0	2	2	0	2	0	0	2	0	0	2	2	2	2	0	0	1	2
26	2	0	2	2	2	0	0	0	4	0	(CA)	2	0	2	2	2	0	2	0	0	4	0	0	0	1	4
27	2	0	0	2	4	0	2	4	2	0	0	4	2	2	0	4	2	0	0	0	0	0	0	2	1	4
28	2	0	0	0	0	0	0	2	4	0	0	2	2	2	0	2	0	0	0	0	0	4	0	2	1	4
29	2	0	2	0	2	2	0	2	0	2	0	0	0	2	2	2	2	0	2	0	2	0	2	0	1	2
30	4	0	2	2	2	0	0	2	2	2	0	2	0	0	0	2	0	2	0	0	2	2	0	0	1	4
AV	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	
PK	4	2	2	4	4	4	2	4	4	4	2	4	2	2	4	4	2	4	2	2	4	4	4	2		4

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OZONE                                                                                                   CB-TRACT
(UG/M3)                                                                                                 TRAILER AB23
                                                                                                        SEPT  1983
                                                                                                        CATHEDRAL BLUFFS SHALE OIL CO.

                                                    HOUR (LOCAL STANDARD TIME)

DAY    1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  AVE PEAK

  1   76   80   84   84   78   80   76   71   71   78   98   98  100  100   90   92  102  100   94   94   90   92  100  102   89  102
  2   84   84   80   76   80   76   73   71   71   94   98  100  106  108  108  112  112  106   82   80   80   71   57   61   86  112
  3   59   55   65   61   73   76   63   39   55   67   74   78   88  116  114  112  108  106   94   86   73   65   49   55   76  116
  4   43   41   39   51   47   63   53   51   57   73   78   80   82   80   80   78   80   80   69   47   47   47   49   47   61   82
  5   55   59   63   61   51   63   59   61   80   80   80   78   71   69   73   78   80   80   74   67   65   65   65   65   68   80
  6   67   63   67   61   69   67   63   51   63   74   80   84   82   78   78   80   76   71   65   63   67   69   65   69   70   84
  7   61   65   65   65   65   65   67   57   59   71   74   78   84   86   88   88   98   96   84   80   80   78   73   71   75   98
  8   67   67   67   59   49   47   43   51   63   69   71   74   78   78   80   82   84   82   80   76   78   80   80   76   70   84
  9   69   69   69   69   69   67   57   55   73   78   76   74   74   73   73   73   69   69   63   65   63   61   59   63   68   78
 10   59   59   57   47   47   47   47   49   63   69   73   78   78   78   78   78   78   74   71   61   61   55   61   61   64   78
 11   63   73   76   80   80   78   74   67   74   80   80   74   73   73   73   73   76   78   74   69   63   63   65   65   73   80
 12 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 13 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 14 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 15 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 16 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 17 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 18 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 19 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 20 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 21 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 22 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 23 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 24 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 25 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 26 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 27 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 28 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 29 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )
 30 (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (IM) (  ) (  )


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 PK   84   84   84   84   80   80   76   71   80   94   98  100  106  116  114  112  112  106   94   94   90   92  100  102       116
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CARBON MONOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	30	30	20	20	20	20	30	30	30	30	20	20	20	20	20	20	30	30	30	30	30	30	30	30	30	30
2	30	30	30	30	30	30	30	50	50	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	35	50
3	30	30	50	30	50	50	30	50	50	50	50	50	30	30	30	30	30	30	30	30	30	30	30	30	38	50
4	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	50	30	30	30	35	50
5	30	30	30	30	30	30	30	30	30	30	30	30	20	20	20	20	30	30	30	20	20	20	20	20	30	30
6	30	30	30	30	30	30	30	30	30	30	30	20	20	20	20	20	20	20	20	20	20	20	20	20	28	30
7	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	30	30	30	30	25	30
8	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	34	30
9	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	34	30
10	30	30	30	30	30	30	30	30	30	30	30	20	20	20	20	20	20	20	20	20	20	20	20	20	28	30
11	20	20	20	20	20	20	20	20	20	20	20	20	10	10	10	10	20	20	20	20	20	20	20	20	21	20
12	20	20	20	20	20	20	20	20	20	20	(CA)	(CA)	(CA)	20	0	0	0	30	30	30	30	30	30	30	24	30
13	30	30	30	30	30	30	50	50	30	30	30	30	50	30	30	20	20	30	30	30	30	30	30	30	35	50
14	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	50	35	50
15	50	50	50	50	50	50	50	50	50	50	50	30	30	30	30	30	30	30	30	30	30	30	30	30	40	50
16	30	30	30	30	30	30	30	30	30	30	30	30	30	20	20	30	30	30	30	30	30	30	30	30	34	30
17	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	34	30
18	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	50	50	50	36	50
19	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	30	30	30	30	30	30	30	30	30	42	50
20	30	30	30	30	30	30	30	30	30	30	30	30	20	20	20	30	30	30	20	20	20	20	20	20	30	30
21	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	23	20
22	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	23	20
23	20	20	20	20	20	20	20	30	20	30	30	30	30	30	30	30	30	30	30	30	30	50	50	50	32	50
24	30	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
25	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
26	50	50	50	50	50	50	50	50	50	50	(CA)	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
27	50	50	50	50	50	50	50	50	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	31	50
28	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
29	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
30	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
AV	35	36	36	35	36	36	36	37	36	36	35	34	33	32	31	31	33	34	34	33	34	34	34	35	34	
PK	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		50

SULFUR DIOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	(CA)	0	3	0	0	0	0	0	3	3	0	0	3
13	3	0	0	0	0	0	0	3	0	0	3	0	0	3	0	0	0	0	0	0	0	0	3	0	1	3
14	0	0	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
15	3	0	0	0	0	0	3	0	0	0	0	3	0	3	3	3	0	0	0	0	0	0	0	0	1	3
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	3	0	0	0	0	0	0	0	0	0	3
18	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	5	5	5	8	8	5	8	8	8	10	8	10	10	8	4	10
24	10	10	8	10	10	10	10	8	8	8	10	8	10	10	10	10	8	5	5	8	8	8	8	8	9	10
25	8	10	8	8	10	8	10	8	8	10	10	10	10	10	8	10	8	8	8	8	8	10	8	10	9	10
26	8	8	8	10	8	8	10	13	10	10	(CA)	13	13	10	8	10	10	10	8	10	10	10	8	10	10	13
27	16	13	10	10	10	13	8	8	8	10	10	8	8	8	5	10	8	8	8	8	8	8	8	5	9	16
28	5	8	8	8	8	8	8	5	5	10	5	8	8	8	8	8	5	8	5	5	8	8	5	5	7	10
29	3	5	5	3	5	3	5	3	5	3	3	5	3	3	3	3	5	5	3	3	5	0	5	3	4	5
30	5	5	5	3	3	8	5	5	5	5	8	5	8	5	5	8	8	5	8	8	5	5	8	8	6	8
AV	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
PK	16	13	10	10	10	13	10	13	10	10	10	13	13	10	10	10	10	10	8	10	10	10	10	10		16

HYDROGEN SULFIDE
(UG/M3)

CB-TRACT
TRAILER AB23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	1	1	1	1	0	1	1	1	3	4	3	4	3	3	4	4	3	3	3	3	1	1	2	4
2	0	1	0	1	0	1	0	1	1	1	3	3	3	3	3	1	1	1	1	1	0	1	1	0	1	3
3	0	0	0	0	0	0	0	1	1	1	1	3	3	3	3	3	3	3	3	3	1	3	1	0	2	3
4	1	1	1	1	3	1	3	3	4	4	4	4	6	6	6	4	4	4	4	4	4	3	3	1	3	6
5	3	3	3	3	4	3	3	3	4	4	4	6	6	6	6	6	4	4	4	4	4	4	3	3	4	6
6	3	3	3	3	3	3	4	1	3	4	4	4	4	6	4	4	4	4	4	4	4	4	3	3	4	6
7	3	3	3	3	3	3	3	3	4	6	6	6	7	6	4	4	4	4	4	4	3	3	3	1	4	7
8	1	3	3	3	3	3	1	3	3	4	3	3	4	4	4	4	3	4	3	3	3	3	3	1	3	4
9	1	3	3	1	3	1	3	3	3	3	4	4	4	4	3	3	3	4	3	1	3	1	1	3	3	4
10	3	1	1	1	0	1	0	0	1	1	3	4	3	3	3	4	4	4	3	1	1	1	1	0	2	4
11	0	0	0	0	1	1	1	1	1	3	4	4	4	4	3	4	3	3	1	3	1	1	1	1	2	4
12	0	0	1	1	0	1	1	1	1	1	3	4	4	(CA)	(CA)	(CA)	(CA)	7	3	1	0	0	0	0	2	7
13	0	0	0	0	0	0	0	1	1	1	1	3	3	4	3	1	3	1	0	0	0	0	0	0	1	4
14	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	1
15	0	0	0	0	0	0	0	0	0	0	1	1	3	1	1	1	1	1	1	0	0	0	0	0	1	3
16	0	0	0	0	0	0	0	0	0	0	1	1	3	1	1	1	1	0	1	0	0	0	0	0	1	3
17	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1
18	0	0	0	0	0	1	0	0	1	1	1	3	3	3	3	3	1	3	1	1	3	1	1	3	1	3
19	3	3	4	4	3	4	3	3	3	4	4	4	6	6	6	6	4	6	3	0	0	0	0	0	3	6
20	0	0	0	0	0	0	0	0	4	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	4
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
23	0	0	0	0	0	0	0	0	0	0	1	3	3	1	3	0	0	1	3	1	1	0	1	0	1	3
24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	(CA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
28	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	7	8	4	7	7	7	7	6	6	6	4	3	8
AV	1	1	1	1	1	1	1	1	1	1	2	2	2	3	2	2	2	2	2	1	1	1	1	1	1	
PK	3	3	4	4	4	4	4	3	4	6	6	6	7	7	8	6	7	7	7	7	6	6	6	4		8

PARTICULATE DATA
UG/M3

C-B TRACT
SEPT 1983
OCCIDENTAL OIL SHALE, INC.

	STATION				
DAY	AB20	AB23	AB26	AD42	AD56
3	( )	22.4	( )	( )	( )
7	( )	22.6	( )	( )	( )
11	( )	34.7	( )	( )	( )
15	( )	24.6	( )	( )	( )
19	( )	46.9	( )	( )	( )
23	( )	14.5	( )	( )	( )
27	( )	15.5	( )	( )	( )
AVE	( )	25.9	( )	( )	( )
GM	( )	24	( )	( )	( )
PEAK	( )	46.9	( )	( )	( )

WIND SPEED @ 10M
METERS/SEC

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	1	0	0	0	1	1	2	1	1	1	1	3	4	4	3	1	2	3	4	4	4	2	5	5	2	5
2	3	2	2	1	2	1	1	1	0	5	5	4	6	7	7	5	5	4	4	3	2	1	2	1	3	7
3	1	0	1	0	0	1	1	2	2	1	1	2	2	5	7	6	6	4	2	3	4	5	4	1	3	7
4	1	1	1	2	2	3	0	1	1	1	2	2	1	1	2	1	2	0	1	1	0	1	1	2	1	3
5	2	1	1	2	0	2	0	1	3	3	5	4	5	5	5	4	5	4	4	2	2	1	2	2	3	5
6	3	2	2	0	0	0	0	1	1	1	1	1	2	3	3	2	1	3	2	2	1	1	2	0	2	3
7	1	0	2	2	2	1	3	2	2	1	3	4	4	5	5	6	6	6	7	7	7	7	5	4	4	7
8	4	6	6	0	0	0	1	1	2	5	5	4	5	6	6	5	5	5	4	3	3	3	3	2	4	6
9	2	2	1	3	2	0	0	0	4	5	5	5	6	6	5	5	5	4	3	3	1	2	3	2	3	6
10	1	2	1	2	2	1	0	0	0	1	1	2	4	3	2	4	4	3	1	1	1	2	0	1	2	4
11	1	1	1	0	1	0	0	1	1	2	3	3	5	5	4	3	3	3	2	0	2	1	1	2	2	5
12	0	0	2	1	1	0	0	1	1	0	1	1	2	2	1	3	4	4	2	1	1	1	1	0	1	4
13	0	1	0	0	(CM)	0	(CM)	0	0	1	1	2	4	4	5	6	4	4	2	2	0	1	(CM)	2	2	6
14	1	3	3	0	2	2	2	3	2	4	5	5	5	6	6	5	2	1	3	2	4	1	1	1	3	6
15	1	1	0	1	0	1	0	0	1	1	3	4	3	4	4	4	4	4	2	3	1	0	0	1	2	4
16	1	1	1	1	1	(CM)	2	0	1	2	3	5	5	4	5	4	4	4	4	4	2	2	0	0	2	5
17	(CM)	0	1	1	0	1	3	3	4	4	6	8	7	5	6	5	6	4	3	2	3	3	3	0	3	8
18	1	3	0	2	2	4	4	6	6	6	5	6	6	6	5	3	7	6	8	7	7	6	5	3	5	8
19	5	6	6	7	7	7	7	8	9	8	8	9	8	4	7	8	9	7	6	4	4	4	4	3	6	9
20	2	3	3	2	2	1	1	1	1	1	1	2	3	1	1	1	2	2	2	1	2	1	2	1	2	3
21	(CM)	0	(CM)	1	0	0	1	0	1	1	2	3	2	2	2	2	3	4	3	3	1	1	1	1	2	4
22	1	0	1	0	0	1	1	1	1	1	2	1	2	3	4	2	2	4	3	4	4	4	2	1	2	4
23	1	1	2	1	0	0	4	5	4	6	5	1	2	4	1	2	4	4	1	2	2	1	2	2	2	6
24	3	2	2	2	2	2	1	1	0	0	(CM)	1	4	3	3	3	2	1	2	2	2	2	2	0	2	4
25	0	1	0	(CM)	1	0	1	1	0	1	1	1	2	1	1	1	3	3	2	1	2	0	0	0	1	3
26	(CM)	(CM)	1	0	1	1	2	2	1	0	4	5	4	4	3	3	3	4	4	4	4	4	6	4	3	6
27	5	4	4	4	2	5	4	5	6	6	6	7	7	8	8	6	5	4	1	2	3	2	2	2	5	8
28	2	3	2	1	0	2	2	3	4	5	5	4	5	4	4	4	4	4	4	4	4	4	3	2	3	5
29	4	4	4	4	4	4	1	0	2	4	4	4	4	5	6	4	5	6	4	4	4	3	2	2	4	6
30	2	2	1	2	3	2	2	3	6	5	4	3	3	4	5	3	3	4	4	3	5	5	7	5	4	7
AV	2	2	2	2	1	2	2	2	2	3	3	4	4	4	4	4	4	4	3	3	3	2	3	2	3	
PK	5	6	6	7	7	7	7	8	9	8	8	9	8	8	8	8	9	7	8	7	7	7	7	5		9

WIND SPEED @ 30M
METERS/SEC

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	2	1	0	1	2	0	3	2	2	2	2	4	5	5	4	2	3	4	5	6	6	3	8	8	3	8
2	4	4	2	1	3	1	1	2	2	7	7	6	8	9	9	7	7	5	4	4	4	1	2	1	4	9
3	1	0	1	1	0	1	2	3	3	2	2	3	3	8	10	8	9	7	3	5	7	7	5	2	4	10
4	1	2	3	3	4	5	1	1	2	2	2	3	2	2	2	1	2	1	2	2	0	1	3	3	2	5
5	3	1	1	3	0	3	2	2	4	4	7	6	7	8	7	6	7	6	6	4	4	1	1	2	4	8
6	4	2	1	0	0	0	(CM)	2	2	1	2	2	3	4	4	3	2	4	2	1	1	2	2	1	2	4
7	2	1	3	3	2	1	4	3	2	1	4	5	5	7	8	8	8	8	10	10	10	10	8	6	5	10
8	7	8	8	1	0	0	1	1	3	7	7	6	7	8	8	8	7	7	5	5	4	5	5	3	5	8
9	4	3	3	4	4	2	1	2	4	8	8	8	8	8	7	8	8	5	5	5	4	3	4	4	5	8
10	2	3	2	3	3	2	0	0	0	1	1	3	4	4	2	5	5	4	2	1	1	1	(CM)	1	2	5
11	1	2	1	0	0	0	(CM)	1	1	2	4	4	7	8	5	4	4	4	3	1	1	1	1	3	3	8
12	1	0	1	0	0	1	0	1	1	1	2	2	2	2	2	4	6	6	3	2	1	1	1	0	2	6
13	0	0	0	(CM)	1	0	0	0	0	1	2	3	4	5	7	8	6	6	3	2	1	1	1	3	3	8
14	1	4	4	1	4	3	3	4	3	5	7	8	7	9	8	7	2	2	4	3	5	3	1	1	4	9
15	1	1	0	1	(CM)	1	0	1	1	2	4	5	4	5	5	5	6	6	3	3	1	1	1	2	3	6
16	1	1	2	1	1	0	3	1	1	3	4	7	7	7	7	5	6	6	6	7	4	4	(CM)	1	4	7
17	0	0	1	1	1	3	5	4	5	5	8	11	9	7	8	7	8	6	5	3	6	6	6	2	5	11
18	1	4	1	3	3	6	6	8	8	8	7	8	9	9	8	4	9	9	11	11	10	9	8	4	7	11
19	7	9	10	11	10	11	10	12	13	12	11	13	12	6	10	11	13	10	8	5	5	6	5	4	9	13
20	3	4	4	4	3	2	2	1	1	1	1	3	4	1	1	2	3	3	3	2	4	1	1	0	2	4
21	1	0	(CM)	0	0	1	0	0	1	1	3	4	3	3	3	2	4	5	4	6	0	1	1	1	2	6
22	2	0	0	0	0	2	0	1	2	2	2	2	3	4	5	3	3	6	5	7	7	7	4	1	3	7
23	1	1	4	3	0	1	7	8	5	8	7	2	3	5	2	3	6	5	2	2	3	2	2	3	4	8
24	4	4	4	3	3	3	2	1	0	1	0	2	5	4	4	4	3	2	4	3	2	2	1	0	3	5
25	0	2	1	0	1	1	0	1	1	1	1	2	3	1	1	2	4	4	3	2	1	0	0	0	1	4
26	0	0	0	0	0	2	3	3	2	0	6	7	6	6	4	4	4	6	5	5	5	6	9	6	4	9
27	7	5	6	6	3	8	6	7	8	8	8	9	9	11	10	9	7	6	2	4	4	4	4	4	7	11
28	4	4	4	4	1	4	4	5	5	7	7	6	6	6	6	5	6	5	7	6	5	6	5	4	5	7
29	5	5	6	6	7	6	3	1	2	6	6	5	5	7	8	5	7	8	6	6	5	4	4	3	5	8
30	3	4	2	4	5	3	4	4	9	7	5	4	4	5	7	4	4	5	6	5	8	8	11	8	5	11
AV	3	3	3	2	2	3	3	3	3	4	5	5	5	6	6	5	6	5	5	4	4	4	4	3	4	
PK	7	9	10	11	10	11	10	12	13	12	11	13	12	11	10	11	13	10	11	11	10	10	11	8		13

WIND SPEED @ 60M
METERS/SEC

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	1	1	0	1	2	1	3	4	2	2	2	4	6	5	4	3	4	5	6	8	7	4	8	9	4	9
2	4	5	2	2	3	2	2	3	3	7	8	7	8	10	10	8	7	5	5	5	4	0	3	1	5	10
3	1	1	1	1	0	1	2	4	3	2	2	3	3	8	10	9	10	7	4	6	8	8	6	2	4	10
4	1	2	4	4	4	6	1	1	2	2	3	4	2	2	3	1	2	1	2	3	1	1	4	4	2	6
5	3	1	2	3	0	3	4	3	4	4	7	6	7	8	8	6	7	7	8	5	4	0	1	2	4	8
6	3	1	1	1	0	0	0	2	1	1	2	2	3	4	4	4	2	4	3	0	1	2	2	2	2	4
7	1	0	3	3	2	0	5	4	3	2	4	6	6	8	8	8	8	9	12	11	11	12	9	7	6	12
8	8	9	9	1	1	1	1	1	4	8	8	6	7	8	8	8	7	7	7	6	6	6	6	4	6	9
9	4	2	2	4	5	4	4	3	5	8	8	8	9	9	8	8	8	6	6	7	5	4	5	4	6	9
10	2	3	2	3	3	2	0	1	0	1	1	3	5	4	3	5	5	5	2	1	1	1	1	1	2	5
11	1	2	2	1	1	1	1	1	1	2	4	5	8	8	6	4	5	4	3	1	1	2	1	3	3	8
12	2	1	1	1	1	1	1	1	1	1	2	3	2	3	2	4	7	7	4	3	1	1	2	1	2	7
13	1	1	0	0	0	0	0	0	1	1	2	3	5	6	8	9	7	6	4	1	1	1	1	3	3	9
14	1	5	5	2	6	4	4	4	4	6	8	8	8	9	9	7	3	2	4	4	6	4	1	2	5	9
15	2	1	1	1	0	1	1	0	1	2	4	6	4	5	6	6	7	7	4	3	2	1	0	3	3	7
16	0	2	3	2	1	0	3	2	2	3	4	8	8	7	8	5	7	7	8	9	6	5	2	2	4	9
17	2	2	2	2	3	4	6	6	6	6	9	12	10	8	8	8	9	7	6	4	7	8	8	4	6	12
18	2	7	3	5	4	8	8	9	9	8	8	9	9	9	8	5	10	10	13	12	12	11	10	6	8	13
19	9	11	12	13	13	13	13	14	14	13	12	13	13	8	11	12	14	10	8	6	6	6	5	5	11	14
20	4	4	4	4	4	3	2	1	1	1	2	4	4	1	1	2	3	3	3	3	4	2	0	(CM)	3	4
21	1	0	0	0	1	0	0	1	1	1	4	4	3	3	4	3	4	6	6	8	2	1	0	1	2	8
22	4	1	1	1	1	2	1	2	2	2	2	2	3	4	5	3	3	7	7	8	8	8	6	0	3	8
23	1	1	6	4	2	2	8	9	6	9	8	2	3	6	2	3	6	5	3	2	4	4	2	3	4	9
24	4	4	4	4	4	4	3	0	(CM)	1	0	2	5	5	4	4	3	3	4	4	2	1	1	0	3	5
25	0	1	0	0	0	1	0	1	1	2	2	2	3	1	1	2	4	5	4	2	1	1	0	(CM)	2	5
26	0	0	0	1	0	2	3	3	2	0	6	7	7	6	5	4	4	7	6	6	6	7	11	8	4	11
27	8	6	7	8	4	10	8	8	8	8	9	10	10	12	11	10	8	7	3	4	4	4	4	5	7	12
28	5	5	5	5	4	6	6	6	5	8	7	7	7	7	7	6	6	6	8	7	7	8	7	5	6	8
29	7	7	7	8	7	8	4	1	3	6	6	5	6	8	9	6	8	9	7	7	6	5	4	4	6	9
30	4	4	2	4	6	4	4	4	10	8	6	4	4	6	7	4	5	6	8	6	10	10	13	9	6	13
AV	3	3	3	3	3	3	3	3	4	4	5	5	6	6	6	6	6	6	6	5	5	4	4	4	4	
PK	9	11	12	13	13	13	13	14	14	13	12	13	13	12	11	12	14	10	13	12	12	12	13	9		14

WIND DIRECTION @ 10M
DEGREES

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	208	180	135	135	151	197	144	141	76	338	236	243	226	232	236	247	197	225	188	186	193	250	284	248	204
2	148	133	116	86	104	87	95	123	232	208	212	220	228	223	226	232	241	254	335	17	96	225	243	204	188
3	180	258	139	135	210	109	298	275	289	316	334	321	278	221	225	233	236	233	220	207	314	314	341	19	259
4	275	216	159	177	147	178	199	115	16	322	335	320	314	323	320	115	75	73	166	204	0	247	225	223	228
5	219	202	158	179	111	205	171	202	243	250	289	287	282	282	288	241	229	228	219	249	232	152	214	217	225
6	215	97	190	211	158	180	143	73	61	357	354	13	341	325	321	321	316	221	229	221	153	187	213	144	209
7	126	171	118	115	177	125	143	109	61	182	173	188	225	212	204	207	196	230	231	218	196	183	168	156	174
8	170	180	180	205	68	63	68	65	208	213	209	211	209	209	216	220	212	206	201	183	182	181	158	118	183
9	136	88	109	149	155	193	90	107	197	207	212	227	226	230	225	222	241	229	213	210	206	260	287	294	202
10	287	279	281	261	241	223	11	249	306	39	325	306	332	316	330	313	317	344	17	230	217	213	71	267	297
11	174	202	215	139	207	279	109	94	92	352	310	303	288	297	305	309	313	305	307	290	202	236	189	159	258
12	180	225	230	101	259	190	130	63	77	51	358	325	341	315	307	307	312	317	292	218	215	211	220	4	281
13	215	222	95	215	(CM)	191	(CM)	66	19	12	13	325	332	315	299	294	284	296	294	213	169	238	(CM)	143	280
14	251	162	169	129	191	267	281	167	201	215	219	278	246	256	270	301	25	195	195	122	135	164	109	180	204
15	234	204	127	210	67	224	99	348	27	323	307	309	330	300	313	298	294	288	289	220	190	341	212	256	282
16	151	189	163	215	225	(CM)	202	161	210	297	298	276	294	280	278	243	225	217	198	198	219	209	39	236	226
17	(CM)	76	135	119	39	215	202	204	212	233	292	293	295	281	270	253	287	307	296	218	208	204	204	135	236
18	88	205	209	199	183	211	205	205	206	206	209	226	240	236	234	235	215	225	216	218	213	197	205	205	211
19	185	207	211	211	207	200	203	212	217	219	227	228	241	255	307	307	317	333	2	355	14	32	32	34	254
20	9	277	259	277	285	250	222	281	298	352	325	310	292	356	345	319	316	340	359	134	153	212	224	208	292
21	(CM)	212	(CM)	207	346	56	232	146	63	327	203	205	311	335	323	263	231	215	207	211	57	98	134	161	217
22	204	192	216	263	225	287	119	84	70	15	350	329	315	329	304	336	258	211	206	208	205	207	207	66	249
23	121	344	227	170	30	200	206	206	210	218	227	159	59	308	105	153	202	183	138	92	104	114	85	69	155
24	155	133	123	149	156	172	145	39	45	335	(CM)	212	225	209	213	242	289	261	225	197	136	147	156	221	183
25	209	205	197	(CM)	229	315	225	257	284	326	331	327	347	333	297	285	286	282	249	224	216	248	240	68	269
26	(CM)	(CM)	226	189	221	191	145	101	70	56	216	208	214	225	233	211	185	190	183	169	170	217	197	203	192
27	185	171	185	176	149	181	184	185	198	197	210	218	224	224	227	227	236	238	192	182	192	200	204	204	199
28	206	170	189	202	219	199	197	186	192	196	208	205	183	206	202	220	215	205	188	196	175	166	168	148	194
29	177	191	172	172	171	164	138	261	232	195	227	212	219	217	217	212	212	195	211	187	153	138	148	149	190
30	127	99	111	117	92	100	159	218	203	204	197	205	251	215	208	199	144	167	174	171	180	170	175	188	171
PV	184	188	172	175	177	193	166	155	200	279	264	260	272	268	266	255	252	241	226	202	182	201	193	181	223

WIND DIRECTION @ 30M
DEGREES

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	199	185	158	166	170	195	139	140	76	336	229	239	221	226	231	242	193	221	182	179	185	228	279	243	202
2	141	141	125	131	120	191	137	161	211	202	208	216	224	217	222	229	236	248	330	13	86	235	271	223	196
3	140	290	105	109	109	78	311	277	285	310	331	318	269	215	221	229	232	229	219	202	310	312	338	21	271
4	270	208	155	164	143	174	197	125	13	319	332	318	312	315	315	111	73	71	152	170	0	278	242	237	230
5	231	207	131	154	174	193	192	200	241	249	285	283	277	278	284	240	227	223	216	242	242	156	217	232	225
6	220	87	150	331	24	338	(CM)	92	63	2	349	10	335	320	317	317	309	214	210	239	137	165	201	163	322
7	118	125	119	118	156	115	132	107	63	173	170	182	219	208	198	201	191	225	227	213	191	176	160	151	166
8	163	173	173	207	117	141	81	69	205	209	206	207	204	203	212	216	206	202	195	174	172	174	155	123	179
9	127	92	100	150	146	164	153	153	192	203	208	224	222	226	221	217	236	226	212	209	208	256	289	302	199
10	303	288	313	282	269	233	5	265	306	42	323	305	328	311	324	309	314	340	12	258	247	210	(CM)	305	303
11	178	213	205	100	135	289	(CM)	104	82	347	302	298	282	291	300	305	309	300	302	331	174	251	235	117	273
12	104	122	267	156	338	239	130	81	74	56	0	323	341	313	303	304	308	312	291	237	236	219	229	319	300
13	246	238	37	(CM)	222	349	21	55	9	9	6	322	326	310	295	288	280	292	297	233	177	264	261	131	304
14	273	151	159	176	191	249	283	156	193	211	216	274	243	251	264	295	21	184	187	116	123	161	141	207	203
15	259	200	119	186	(CM)	220	180	344	24	315	301	303	324	295	307	294	289	284	294	229	208	28	210	270	275
16	113	142	139	169	197	328	191	219	205	291	292	272	290	276	273	240	221	212	194	191	215	208	(CM)	212	221
17	215	185	180	152	239	213	199	201	209	230	286	287	291	277	266	252	285	305	297	231	210	198	202	188	232
18	138	201	211	207	197	208	204	201	201	201	203	222	236	232	229	234	210	220	212	213	209	193	200	199	208
19	181	204	208	205	201	196	198	207	212	215	224	223	239	252	304	305	314	328	358	352	11	28	29	29	250
20	5	287	267	282	297	271	239	281	290	352	323	307	291	354	341	316	312	336	358	101	132	173	258	210	300
21	251	207	(CM)	222	343	25	240	173	59	322	199	204	307	331	320	257	226	208	202	198	185	98	114	145	223
22	197	135	196	302	299	297	166	102	69	20	349	325	311	321	301	331	254	205	202	205	202	207	200	58	254
23	113	309	232	194	270	214	203	201	207	214	222	166	54	304	106	154	197	178	146	102	117	146	104	75	173
24	152	130	115	141	156	175	178	32	37	341	180	207	220	207	209	236	282	256	231	206	126	129	143	236	183
25	150	168	225	84	267	345	247	265	284	326	333	323	344	328	295	281	284	281	268	256	235	203	310	0	285
26	0	337	274	39	243	169	129	100	76	63	211	203	209	219	229	208	180	184	172	153	151	211	194	196	186
27	178	166	183	170	151	175	179	180	193	193	205	213	220	219	222	222	231	233	205	179	179	184	186	201	194
28	193	158	172	178	188	180	180	177	184	191	204	201	178	201	197	216	211	199	181	185	170	163	160	145	184
29	176	187	163	161	161	155	139	241	225	190	222	209	215	211	212	207	207	189	205	182	150	133	137	142	184
30	120	100	100	108	86	92	151	212	201	201	193	199	248	211	203	193	138	161	166	166	174	163	169	184	166
PV	179	178	167	165	186	203	178	166	189	274	256	256	267	263	261	251	248	236	223	202	182	193	204	192	227

WIND DIRECTION @ 60M
DEGREES

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	203	191	175	164	165	196	139	144	93	335	225	238	220	224	231	239	193	221	183	179	180	214	280	245	201
2	142	155	151	169	151	208	197	182	202	201	207	216	224	217	221	229	235	248	333	13	83	17	297	302	207
3	145	270	115	102	185	133	307	290	285	313	333	319	269	215	220	228	233	229	224	208	309	317	341	24	261
4	279	207	156	158	143	179	200	163	7	320	332	322	319	309	316	104	71	65	147	164	191	268	257	257	223
5	255	232	125	138	246	202	192	201	241	251	287	284	278	280	284	241	226	223	217	240	262	194	239	258	237
6	242	90	139	273	315	315	170	117	67	6	349	8	333	321	317	319	311	210	202	255	141	140	178	180	276
7	122	140	118	124	157	119	127	119	79	172	172	184	217	207	197	199	191	225	228	213	190	174	161	154	167
8	165	175	174	213	196	199	135	85	202	208	204	207	203	201	212	214	205	199	193	176	173	173	162	137	186
9	137	113	111	166	156	164	181	169	190	201	207	223	221	224	221	215	236	225	215	213	214	258	294	317	202
10	329	307	350	306	296	265	301	252	301	41	323	307	329	312	327	310	315	340	11	311	317	258	221	305	311
11	213	244	220	176	143	166	161	150	82	350	300	300	283	291	301	307	310	300	305	339	215	270	284	92	265
12	94	127	319	248	299	267	225	196	86	55	3	325	342	312	305	305	310	313	296	270	267	249	249	266	292
13	265	264	256	293	311	243	60	40	8	8	4	322	326	312	295	290	283	294	304	277	199	234	272	115	299
14	305	145	161	196	194	241	297	147	191	210	217	275	245	251	265	297	24	180	186	117	120	163	199	230	209
15	273	216	169	141	163	176	200	239	32	314	300	304	325	298	308	295	291	286	302	259	229	47	85	276	271
16	4	123	122	139	145	217	188	231	204	290	293	274	291	278	275	240	221	211	197	194	217	224	205	221	222
17	204	201	212	188	231	215	205	203	209	231	285	286	289	277	266	253	285	304	299	251	219	208	210	202	238
18	194	205	212	211	208	208	205	201	201	198	203	223	236	232	230	235	209	219	211	213	209	193	201	197	210
19	185	205	208	204	201	197	198	207	211	214	224	223	240	252	302	304	312	328	1	353	14	32	33	32	248
20	8	304	282	292	309	291	266	272	281	356	319	310	294	343	341	315	316	339	358	84	122	146	326	(CM)	317
21	240	199	166	8	302	25	66	217	68	322	200	207	310	331	321	260	225	208	208	203	205	156	174	180	225
22	210	177	195	264	332	293	230	132	77	26	353	329	313	320	303	333	253	205	207	210	207	213	207	135	247
23	119	293	245	210	244	214	204	199	208	213	221	180	58	307	105	161	195	179	161	131	141	172	142	89	183
24	160	140	121	149	170	183	189	318	(CM)	357	194	211	219	205	207	236	278	255	237	215	145	125	163	207	194
25	114	148	249	248	215	333	347	286	287	328	344	325	348	329	300	284	287	285	281	287	272	240	278	(CM)	291
26	325	37	150	297	315	173	135	107	101	79	210	201	209	218	226	208	182	183	169	147	144	208	195	193	181
27	178	170	188	171	161	175	179	180	191	192	204	212	219	219	221	222	229	233	216	189	183	185	186	210	196
28	196	159	169	172	180	173	173	172	183	189	204	202	179	199	196	215	209	196	180	181	172	165	163	155	182
29	181	189	165	161	157	155	150	222	224	189	220	208	213	207	211	206	204	188	204	181	156	140	140	148	184
30	131	114	100	112	94	98	156	207	201	201	192	200	249	212	202	193	142	163	166	168	174	162	171	186	168
PV	194	182	172	190	202	202	187	189	186	273	255	257	268	263	262	251	248	236	226	211	191	197	213	200	228

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
10 METER LEVEL

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	208	180	135	135	151	197	144	141	76	338	236	243	226	232	236	247	197	225	188	186	193	250	284	248	221	1.7
2	148	133	116	86	104	87	95	123	232	208	212	220	228	223	226	232	241	254	335	17	96	225	243	204	215	1.8
3	180	258	139	135	210	109	298	275	289	316	334	321	278	221	225	233	236	233	220	207	314	314	341	19	260	1.8
4	275	216	159	177	147	178	199	115	16	322	335	320	314	323	320	115	75	73	166	204	0	247	225	223	220	0.3
5	219	202	158	179	111	205	171	202	243	250	289	287	282	282	288	241	229	228	219	249	232	152	214	217	246	2.3
6	215	97	190	211	158	180	143	73	61	357	354	13	341	325	321	321	316	221	229	221	153	187	213	144	268	0.4
7	126	171	118	115	177	125	143	109	61	182	173	188	225	212	204	207	196	230	231	218	196	183	168	156	192	3.2
8	170	180	180	205	68	63	68	65	208	213	209	211	209	209	216	220	212	206	201	183	182	181	158	118	196	3.1
9	136	88	109	149	155	193	90	107	197	207	212	227	226	230	225	222	241	229	213	210	206	260	287	294	216	2.5
10	287	279	281	261	241	223	11	249	306	39	325	306	332	316	330	313	317	344	17	230	217	213	71	267	301	1.2
11	174	202	215	139	207	279	109	94	92	352	310	303	288	297	305	309	313	305	307	290	202	236	189	159	291	1.2
12	180	225	230	101	259	190	130	63	77	51	358	325	341	315	307	307	312	317	292	218	215	211	220	4	301	0.8
13	215	222	95	215	***	191	***	66	19	12	13	325	332	315	299	294	284	296	294	213	169	238	***	143	297	1.4
14	251	162	169	129	191	267	281	167	201	215	219	278	246	256	270	301	25	195	195	122	135	164	109	180	226	1.7
15	234	204	127	210	67	224	99	348	27	323	307	309	330	300	313	298	294	288	289	220	190	341	212	256	291	1.4
16	151	189	163	215	225	***	202	161	210	297	298	276	294	280	278	243	225	217	198	198	219	209	39	236	244	1.9
17	***	76	135	119	39	215	202	204	212	233	292	293	295	281	270	253	287	307	296	218	208	204	204	135	262	2.5
18	88	205	209	199	183	211	205	205	206	206	209	226	240	236	234	235	215	225	216	218	213	197	205	205	215	4.6
19	185	207	211	211	207	200	203	212	217	219	227	228	241	255	307	307	317	333	2	355	14	32	32	34	245	3.3
20	9	277	259	277	285	250	222	281	298	352	325	310	292	356	345	319	316	340	359	134	153	212	224	208	290	1.0
21	***	212	***	207	346	56	232	146	63	327	203	205	311	335	323	263	231	215	207	211	57	98	134	161	227	0.7
22	204	192	216	263	225	287	119	84	70	15	350	329	315	329	304	336	258	211	206	208	205	207	207	66	247	0.8
23	121	344	227	170	30	200	206	206	210	218	227	159	59	308	105	153	202	183	138	92	104	114	85	69	188	1.3
24	155	133	123	149	156	172	145	39	45	335	***	212	225	209	213	242	289	261	225	197	136	147	156	221	186	1.3
25	209	205	197	***	229	315	225	257	284	326	331	327	347	333	297	285	286	282	249	224	216	248	240	68	276	0.8
26	***	***	226	189	221	191	145	101	70	56	216	208	214	225	233	211	185	190	183	169	170	217	197	203	198	2.6
27	185	171	185	176	149	181	184	185	198	197	210	218	224	224	227	227	236	238	192	182	192	200	204	204	205	4.2
28	206	170	189	202	219	199	197	186	192	196	208	205	183	206	202	220	215	205	188	196	175	166	168	148	194	3.2
29	177	191	172	172	171	164	138	261	232	195	227	212	219	217	217	212	212	195	211	187	153	138	148	149	193	3.3
30	127	99	111	117	92	100	159	218	203	204	197	205	251	215	208	199	144	167	174	171	180	170	175	188	179	3.0
VD	177	184	182	178	177	193	185	187	205	223	239	249	257	253	254	253	249	241	223	202	186	197	196	185	223	
VV	1.4	1.3	1.4	1.2	0.9	1.3	1.2	1.2	1.3	1.9	2.4	2.6	2.9	3.1	3.1	2.8	2.7	2.6	1.9	2.1	1.8	1.6	1.4	1.0		1.6

TOTAL NUMBER OF OBSERVATIONS = 709

NOTE: **** = MISSING DATA

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
30 METER LEVEL

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	199	185	158	166	170	195	139	140	76	336	229	239	221	226	231	242	193	221	182	179	185	228	279	243	214	2.5
2	141	141	125	131	120	191	137	161	211	202	208	216	224	217	222	229	236	248	330	13	86	235	271	223	212	2.7
3	140	290	105	109	109	78	311	277	285	310	331	318	269	215	221	229	232	229	219	202	310	312	338	21	255	2.4
4	270	208	155	164	143	174	197	125	13	319	332	318	312	315	315	111	73	71	152	170	0	278	242	237	210	0.5
5	231	207	131	154	174	193	192	200	241	249	285	283	277	278	284	240	227	223	216	242	242	156	217	232	245	3.2
6	220	87	150	331	24	338	***	92	63	2	349	10	335	320	317	317	309	214	210	239	137	165	201	163	291	0.4
7	118	125	119	118	156	115	132	107	63	173	170	182	219	208	198	201	191	225	227	213	191	176	160	151	186	4.4
8	163	173	173	207	117	141	81	69	205	209	206	207	204	203	212	216	206	202	195	174	172	174	155	123	190	4.5
9	127	92	100	150	146	164	153	153	192	203	208	224	222	226	221	217	236	226	212	209	208	256	289	302	211	3.8
10	303	288	313	282	269	233	5	265	306	42	323	305	328	311	324	309	314	340	12	258	247	210	***	305	307	1.9
11	178	213	205	100	135	289	***	104	82	347	302	298	282	291	300	305	309	300	302	331	174	251	235	117	292	1.7
12	104	122	267	156	338	239	130	81	74	56	0	323	341	313	303	304	308	312	291	237	236	219	229	319	305	1.1
13	246	238	37	***	222	349	21	55	9	9	6	322	326	310	295	288	280	292	297	233	177	264	261	131	297	1.9
14	273	151	159	176	191	249	283	156	193	211	216	274	243	251	264	295	21	184	187	116	123	161	141	207	219	2.5
15	259	200	119	186	***	220	180	344	24	315	301	303	324	295	307	294	289	284	294	229	208	28	210	270	289	2.1
16	113	142	139	169	197	328	191	219	205	291	292	272	290	276	273	240	221	212	194	191	215	208	***	212	236	2.8
17	215	185	180	152	239	213	199	201	209	230	286	287	291	277	266	252	285	305	297	231	210	198	202	188	253	3.8
18	138	201	211	207	197	208	204	201	201	201	203	222	236	232	229	234	210	220	212	213	209	193	200	199	211	6.7
19	181	204	208	205	201	196	198	207	212	215	224	223	239	252	304	305	314	328	358	352	11	28	29	29	239	4.8
20	5	287	267	282	297	271	239	281	290	352	323	307	291	354	341	316	312	336	358	101	132	173	258	210	302	1.3
21	251	207	***	222	343	25	240	173	59	322	199	204	307	331	320	257	226	208	202	198	185	98	114	145	224	1.1
22	197	135	196	302	299	297	166	102	69	20	349	325	311	321	301	331	254	205	202	205	202	207	200	58	233	1.4
23	113	309	232	194	270	214	203	201	207	214	222	166	54	304	106	154	197	178	146	102	117	146	104	75	191	2.2
24	152	130	115	141	156	175	178	32	37	341	180	207	220	207	209	236	282	256	231	206	126	129	143	236	187	1.6
25	150	168	225	84	267	345	247	265	284	326	333	323	344	328	295	281	284	281	268	256	235	203	310	0	287	1.0
26	0	337	274	39	243	169	129	100	76	63	211	203	209	219	229	208	180	184	172	153	151	211	194	196	190	3.1
27	178	166	183	170	151	175	179	180	193	193	205	213	220	219	222	222	231	233	205	179	179	184	186	201	199	6.1
28	193	158	172	178	188	180	180	177	184	191	204	201	178	201	197	216	211	199	181	185	170	163	160	145	186	4.9
29	176	187	163	161	161	155	139	241	225	190	222	209	215	211	212	207	207	189	205	182	150	133	137	142	186	4.8
30	120	100	100	108	86	92	151	212	201	201	193	199	248	211	203	193	138	161	166	166	174	163	169	184	172	4.3
VD	173	175	173	173	173	191	184	184	201	217	233	245	253	248	250	249	245	236	218	198	183	189	195	186	217	
VV	1.7	1.8	1.8	1.8	1.4	1.8	2.0	1.9	2.0	2.6	3.1	3.6	3.9	4.4	4.3	3.8	3.7	3.6	2.9	3.1	2.6	2.3	2.1	1.4		2.3

TOTAL NUMBER OF OBSERVATIONS = 713

NOTE: **** = MISSING DATA

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
60 METER LEVEL

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	203	191	175	164	165	196	139	144	93	335	225	238	220	224	231	239	193	221	183	179	180	214	280	245	211	2.9
2	142	155	151	169	151	208	197	182	202	201	207	216	224	217	221	229	235	248	333	13	83	17	297	302	213	3.1
3	145	270	115	102	185	133	307	290	285	313	333	319	269	215	220	228	233	229	224	208	309	317	341	24	257	2.7
4	279	207	156	158	143	179	200	163	7	320	332	322	319	309	316	104	71	65	147	164	191	268	257	257	213	0.7
5	255	232	125	138	246	202	192	201	241	251	287	284	278	280	284	241	226	223	217	240	262	194	239	258	247	3.5
6	242	90	139	273	315	315	170	117	67	6	349	8	333	321	317	319	311	210	202	255	141	140	178	180	288	0.5
7	122	140	118	124	157	119	127	119	79	172	172	184	217	207	197	199	191	225	228	213	190	174	161	154	186	5.0
8	165	175	174	213	196	199	135	85	202	208	204	207	203	201	212	214	205	199	193	176	173	173	162	137	190	5.4
9	137	113	111	166	156	164	181	169	190	201	207	223	221	224	221	215	236	225	215	213	214	258	294	317	210	4.6
10	329	307	350	306	296	265	301	252	301	41	323	307	329	312	327	310	315	340	11	311	317	258	221	305	317	2.1
11	213	244	220	176	143	166	161	150	82	350	300	300	283	291	301	307	310	300	305	339	215	270	284	92	291	2.0
12	94	127	319	248	299	267	225	196	86	55	3	325	342	312	305	305	310	313	296	270	267	249	249	266	303	1.5
13	265	264	256	293	311	243	60	40	8	8	4	322	326	312	295	290	283	294	304	277	199	234	272	115	300	2.1
14	305	145	161	196	194	241	297	147	191	210	217	275	245	251	265	297	24	180	186	117	120	163	199	230	220	2.8
15	273	216	169	141	163	176	200	239	32	314	300	304	325	298	308	295	291	286	302	259	229	47	85	276	291	2.3
16	4	123	122	139	145	217	188	231	204	290	293	274	291	278	275	240	221	211	197	194	217	224	205	221	233	3.2
17	204	201	212	188	231	215	205	203	209	231	285	286	289	277	266	253	285	304	299	251	219	208	210	202	251	4.8
18	194	205	212	211	208	208	205	201	201	198	203	223	236	232	230	235	209	219	211	213	209	193	201	197	211	8.0
19	185	205	208	204	201	197	198	207	211	214	224	223	240	252	302	304	312	328	1	353	14	32	33	32	236	5.6
20	8	304	282	292	309	291	266	272	281	356	319	310	294	343	341	315	316	339	358	84	122	146	326	***	315	1.7
21	240	199	166	8	302	25	66	217	68	322	200	207	310	331	321	260	225	208	208	203	205	156	174	180	227	1.4
22	210	177	195	264	332	293	230	132	77	26	353	329	313	320	303	333	253	205	207	210	207	213	207	135	232	2.0
23	119	293	245	210	244	214	204	199	208	213	221	180	58	307	105	161	195	179	161	131	141	172	142	89	197	3.0
24	160	140	121	149	170	183	189	318	***	357	194	211	219	205	207	236	278	255	237	215	145	125	163	207	195	2.2
25	114	148	249	248	215	333	347	286	287	328	344	325	348	329	300	284	287	285	281	287	272	240	278	***	297	1.2
26	325	37	150	297	315	173	135	107	101	79	210	201	209	218	226	208	182	183	169	147	144	208	195	193	189	3.6
27	178	170	188	171	161	175	179	180	191	192	204	212	219	219	221	222	229	233	216	189	183	185	186	210	199	7.0
28	196	159	169	172	180	173	173	172	183	189	204	202	179	199	196	215	209	196	180	181	172	165	163	155	183	5.9
29	181	189	165	161	157	155	150	222	224	189	220	208	213	207	211	206	204	188	204	181	156	140	140	148	185	5.6
30	131	114	100	112	94	98	156	207	201	201	192	200	249	212	202	193	142	163	166	168	174	162	171	186	173	5.2
VD	182	182	178	182	183	193	189	189	199	216	233	246	253	248	250	250	245	235	221	201	187	192	200	193	218	
VV	1.9	2.1	2.1	2.2	1.8	2.5	2.7	2.6	2.4	2.8	3.4	3.9	4.2	4.7	4.6	4.1	4.0	4.0	3.4	3.5	3.2	2.8	2.4	1.8		2.7

TOTAL NUMBER OF OBSERVATIONS = 717

NOTE: **** = MISSING DATA

SIGMA HORIZ. WIND DIR. @ 10M
DEGREES

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	14	10	9	9	6	16	7	11	20	21	31	24	17	13	13	30	23	10	7	7	6	17	11	11	14	31
2	12	12	6	14	8	20	8	9	23	11	12	16	14	12	13	13	12	11	8	8	7	8	5	6	11	23
3	4	12	6	5	10	12	14	11	13	27	26	19	28	15	11	12	12	11	7	7	9	9	12	24	13	28
4	14	7	15	12	11	6	11	16	10	18	27	22	24	26	22	16	15	21	4	7	9	8	7	3	14	27
5	5	5	6	7	21	5	23	15	13	17	13	14	15	14	16	14	11	10	6	11	4	9	3	3	11	23
6	3	11	5	8	5	4	9	9	16	22	30	33	27	24	14	26	21	10	7	5	11	9	11	17	14	33
7	7	10	7	4	6	12	7	8	12	23	23	17	22	16	14	13	11	10	9	9	8	7	6	9	11	23
8	7	8	10	28	17	16	8	15	34	10	10	15	16	14	13	12	13	10	6	4	4	5	6	8	12	34
9	9	5	8	3	11	24	18	23	13	13	12	14	14	13	14	13	13	8	5	6	14	8	7	6	11	24
10	7	5	8	5	5	12	3	11	24	41	29	22	17	24	25	15	13	7	7	6	3	7	5	13	13	41
11	7	6	8	10	9	14	14	10	15	20	22	21	14	13	20	25	13	11	9	13	4	12	11	7	13	25
12	15	10	4	10	10	4	0	9	27	32	37	30	28	34	27	21	13	9	7	7	3	11	13	9	15	37
13	9	10	10	10	(CM)	6	(CM)	10	32	17	30	30	17	18	15	12	12	11	6	4	15	16	(CM)	5	14	32
14	15	9	10	20	13	14	14	7	13	11	14	10	11	11	13	13	17	13	8	10	5	17	16	10	12	20
15	4	2	10	8	9	5	18	11	18	21	23	16	25	19	15	16	12	9	6	3	12	10	4	13	12	25
16	9	9	5	6	16	(CM)	11	13	21	19	18	15	16	17	15	17	13	9	5	5	13	14	21	11	13	21
17	(CM)	12	11	12	23	28	7	9	10	16	14	10	13	14	13	13	11	9	8	5	6	6	5	19	12	28
18	15	17	26	15	17	10	11	9	10	11	13	14	15	15	13	20	11	9	8	8	9	8	8	17	13	26
19	6	9	8	8	8	7	7	9	9	10	12	12	13	11	12	9	9	9	10	10	8	6	5	4	9	13
20	5	4	5	4	4	5	3	17	31	32	36	24	18	47	32	33	23	9	4	7	4	9	4	5	15	47
21	(CM)	7	(CM)	11	15	10	4	8	16	28	24	33	31	25	32	22	20	9	7	6	24	15	13	8	17	33
22	15	11	12	13	14	14	3	7	16	20	21	30	29	25	17	22	19	9	5	5	5	6	11	17	14	30
23	13	38	11	12	18	31	12	11	14	10	10	11	14	9	13	11	10	9	16	17	11	22	18	12	15	38
24	12	8	9	7	3	5	13	6	15	35	(CM)	23	11	12	14	15	14	14	3	8	6	3	4	13	11	35
25	11	10	14	(CM)	9	10	7	11	22	21	27	31	22	37	32	19	11	6	5	3	2	9	9	9	15	37
26	(CM)	(CM)	3	9	15	8	6	8	7	25	14	14	13	17	18	18	10	7	3	3	2	8	8	8	10	25
27	8	8	8	5	13	6	9	9	11	12	12	13	13	10	11	11	12	9	13	5	9	5	3	6	9	13
28	2	6	11	10	15	6	13	6	11	10	13	15	16	17	15	14	12	9	7	6	6	8	7	9	10	17
29	7	7	6	5	5	6	20	17	31	14	13	15	15	12	9	12	9	9	8	8	9	7	4	6	11	31
30	8	6	18	9	9	19	13	17	10	11	13	17	22	9	9	13	10	7	7	10	8	6	6	6	11	22
AV	9	9	9	10	11	12	10	11	17	19	20	19	18	18	17	17	14	10	7	7	8	10	8	10	13	
PK	15	38	26	28	23	31	23	23	34	41	37	33	31	47	32	33	23	21	16	17	24	22	21	24		47

SIGMA HORIZ. WIND DIR. @ 30M
DEGREES

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	9	9	9	10	12	15	6	9	19	21	30	23	15	12	12	27	19	9	6	6	6	17	9	9	13	30
2	12	14	19	29	12	43	30	17	22	10	11	14	12	11	12	12	11	9	8	7	6	16	6	14	15	43
3	7	10	7	6	18	19	15	8	12	21	22	18	24	14	9	11	10	11	6	5	8	8	10	24	13	24
4	12	6	13	10	10	6	10	24	11	17	23	21	26	26	19	16	16	30	7	9	35	11	6	5	15	35
5	10	9	5	6	19	5	12	14	12	16	12	13	13	12	14	13	10	8	4	9	7	12	7	6	10	19
6	5	12	8	14	8	14	(CM)	10	15	26	30	31	27	23	14	17	20	9	10	9	15	9	14	18	16	31
7	16	12	5	5	6	12	6	7	12	23	21	16	20	15	13	12	9	8	8	7	7	6	5	8	11	23
8	5	7	10	28	39	41	19	21	29	9	9	14	14	13	13	10	11	9	5	3	5	5	6	8	14	41
9	7	7	6	4	9	23	23	23	13	12	12	13	13	12	11	11	11	7	3	4	7	8	7	7	11	23
10	11	6	13	4	6	8	12	17	36	36	26	19	16	21	24	14	12	6	6	10	11	12	(CM)	9	15	36
11	6	8	16	9	14	17	(CM)	16	15	20	19	19	12	12	16	22	12	10	11	14	7	15	9	9	13	22
12	9	6	17	12	9	6	9	11	30	30	30	29	24	33	33	20	10	7	6	8	9	8	14	28	17	33
13	14	15	21	(CM)	9	11	0	24	32	18	27	30	15	17	15	10	10	9	6	9	11	16	28	6	15	32
14	13	14	13	27	15	12	14	5	13	9	12	9	10	10	12	12	19	12	7	8	4	15	28	10	13	28
15	9	12	10	7	(CM)	14	29	14	25	21	20	14	22	15	14	15	11	8	7	6	14	9	11	17	14	29
16	15	8	5	9	20	25	13	18	22	17	17	13	13	16	13	14	12	8	4	4	9	10	(CM)	28	14	28
17	34	23	13	22	29	19	6	7	10	14	13	9	11	12	11	12	10	8	7	9	4	5	4	28	13	34
18	38	13	23	18	13	8	9	8	10	10	13	14	13	13	12	21	9	8	7	6	7	7	8	15	13	38
19	6	7	7	6	7	6	6	8	8	9	11	10	12	10	10	8	8	9	8	9	7	6	5	4	8	12
20	4	4	5	4	4	5	8	20	28	30	36	23	15	49	33	28	22	9	4	6	5	13	14	24	16	49
21	12	10	(CM)	24	18	9	23	16	20	23	20	24	31	23	26	21	19	8	5	4	41	21	18	15	19	41
22	23	29	15	18	13	8	14	7	13	17	20	31	27	20	14	22	18	7	4	3	4	4	8	16	15	31
23	14	29	7	13	22	34	10	10	13	8	8	11	12	8	14	11	10	8	19	28	11	25	24	14	15	34
24	12	7	8	7	4	5	13	10	26	39	24	18	10	10	13	14	13	13	3	9	12	6	7	13	12	39
25	12	4	14	8	13	9	15	13	24	18	26	34	19	31	26	18	9	6	5	7	7	12	13	7	15	34
26	11	11	16	21	23	12	5	6	9	24	13	12	13	16	16	16	10	6	2	2	3	7	7	8	11	24
27	7	7	7	4	14	5	7	9	9	11	12	11	12	9	10	9	10	8	12	4	5	3	3	2	8	14
28	1	4	6	5	14	4	7	5	10	9	12	13	17	17	15	14	10	9	6	5	6	7	6	10	9	17
29	8	7	4	3	4	5	21	16	26	13	14	15	15	12	8	10	8	9	7	7	8	8	4	5	10	26
30	8	5	15	6	6	17	11	19	8	11	12	16	22	8	8	12	8	5	7	9	7	4	4	5	10	22
AV	12	11	11	12	13	14	13	13	18	18	19	18	17	17	15	15	12	9	7	8	10	10	10	12	13	
PK	38	29	23	29	39	43	30	24	36	39	36	34	31	49	33	28	22	30	19	28	41	25	28	28		49

SIGMA HORIZ. WIND DIR. @ 60M
DEGREES

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	9	10	4	6	4	10	10	5	17	22	24	20	13	11	11	24	16	8	5	4	4	13	9	8	11	24
2	10	17	14	17	12	18	16	9	13	9	10	14	11	10	11	11	9	8	7	6	5	14	5	15	11	18
3	3	9	4	2	5	8	9	9	10	17	19	17	21	13	8	9	9	9	5	5	8	7	10	20	10	21
4	14	6	9	9	15	5	10	24	14	17	16	18	24	23	16	15	16	20	5	3	10	20	4	4	13	24
5	10	13	4	5	17	3	4	10	12	14	10	12	11	11	12	13	10	7	3	8	6	9	13	4	9	17
6	5	32	9	9	0	0	6	4	14	27	25	29	28	18	13	14	19	9	10	10	8	6	11	9	13	32
7	14	4	6	5	6	7	4	4	11	21	18	15	19	14	11	11	9	7	7	7	7	4	3	6	9	21
8	3	6	9	27	25	25	27	30	25	8	8	12	12	11	11	10	10	7	4	2	3	4	4	6	12	30
9	7	19	9	4	3	6	9	18	12	10	11	12	12	11	10	10	10	7	2	3	4	7	6	9	9	19
10	12	9	11	4	4	7	3	11	31	30	22	18	14	18	21	15	11	5	6	13	6	10	4	13	12	31
11	8	6	6	6	1	6	11	6	16	22	18	15	11	12	15	25	13	10	10	12	0	6	9	7	10	25
12	7	5	5	5	5	5	2	4	18	27	28	26	26	28	32	19	10	6	4	7	6	8	7	6	12	32
13	4	5	2	2	0	6	6	9	29	20	18	27	12	14	14	9	9	8	3	10	6	14	28	9	11	29
14	11	13	21	23	10	10	14	6	12	8	11	9	8	9	11	12	18	10	6	7	4	16	33	8	12	33
15	5	7	7	6	6	5	9	12	16	19	18	12	19	15	13	14	9	7	4	6	11	8	4	10	10	19
16	8	7	4	3	8	19	6	7	20	13	15	13	12	14	12	13	11	6	2	1	8	5	13	10	10	20
17	15	10	12	19	13	9	4	6	8	12	13	9	10	12	10	11	8	7	4	6	4	2	3	16	9	19
18	43	7	28	18	9	6	8	7	9	9	12	12	13	11	11	18	9	7	5	5	6	6	6	6	11	43
19	5	6	5	4	5	4	4	7	7	8	11	10	11	9	9	8	6	8	7	9	7	6	5	4	7	11
20	4	3	4	3	2	4	5	15	23	30	36	19	14	44	29	26	19	8	4	4	4	8	14	(CM)	14	44
21	8	4	7	17	15	6	10	9	19	32	17	23.	30	23	24	20	16	7	4	2	22	20	17	9	15	32
22	10	15	8	6	0	8	6	2	10	16	18	28	26	17	13	19	20	6	2	2	3	4	4	27	11	28
23	16	19	5	7	24	27	8	8	11	7	6	9	11	6	14	10	9	7	18	23	12	14	26	18	13	27
24	12	7	10	7	5	4	9	24	(CM)	36	19	17	8	8	12	13	11	11	2	6	21	10	9	3	11	36
25	11	5	6	8	8	4	0	4	16	19	29	34	18	28	22	19	9	4	3	6	6	5	12	(CM)	12	34
26	0	5	6	3	4	6	5	5	10	20	13	11	12	14	15	13	9	5	2	2	2	7	6	6	8	20
27	6	6	6	2	11	3	6	7	8	10	11	10	12	8	8	9	9	7	6	3	4	2	2	1	7	12
28	1	4	3	2	6	3	3	3	9	7	11	12	15	15	14	12	9	8	4	4	4	5	4	8	7	15
29	6	5	2	1	2	3	15	19	23	11	12	16	14	10	7	9	7	7	6	6	6	7	3	3	8	23
30	9	7	19	6	7	15	10	16	7	9	10	15	20	7	7	10	7	4	4	7	5	2	2	3	9	20
AV	9	9	8	8	8	8	8	10	15	17	16	16	16	15	14	14	11	8	5	6	7	8	9	9	11	
PK	43	32	28	27	25	27	27	30	31	36	36	34	30	44	32	26	20	20	18	23	22	20	33	27		44

TEMPERATURE @ 10M
DEGREE C

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	14	14	14	14	14	15	16	20	24	28	29	30	31	29	28	29	29	27	25	23	22	21	19	14	22	31
2	14	14	14	14	14	14	15	17	21	24	27	28	28	28	28	28	28	27	19	18	16	15	14	13	20	28
3	13	12	12	11	12	13	14	13	16	19	23	25	27	28	28	28	28	27	24	21	18	13	11	11	19	28
4	11	10	10	9	9	10	10	13	14	17	19	20	19	22	21	18	18	21	18	14	13	13	12	11	15	22
5	12	11	11	9	8	9	9	13	18	20	22	23	24	24	25	25	24	23	21	17	17	14	15	14	17	25
6	14	12	12	9	9	8	10	13	17	22	24	26	27	28	28	28	28	27	23	19	17	16	15	14	19	28
7	14	12	13	13	13	13	14	18	22	27	28	29	29	30	29	28	26	25	22	19	17	17	16	16	20	30
8	15	14	14	13	13	13	13	14	16	18	21	23	24	24	25	25	24	23	20	18	17	17	17	16	18	25
9	14	14	13	14	13	12	12	16	21	23	23	24	25	26	27	26	26	23	21	19	18	18	17	16	19	27
10	15	14	13	12	11	9	9	11	16	19	22	24	25	26	27	27	26	24	21	18	17	15	13	12	18	27
11	12	12	11	10	11	9	9	13	18	22	24	26	26	27	27	27	27	25	22	19	17	16	13	13	18	27
12	13	11	11	8	8	8	8	12	17	21	23	24	26	27	27	27	26	24	22	18	17	16	14	13	18	27
13	13	12	11	10	10	8	8	12	17	21	24	27	27	27	27	27	26	25	22	19	17	16	16	14	18	27
14	14	14	16	16	17	16	14	16	21	21	24	22	19	22	24	24	18	19	18	14	13	13	12	12	17	24
15	12	11	10	10	9	9	9	13	17	21	22	23	24	25	26	25	24	23	20	17	16	14	13	11	17	26
16	11	12	11	11	9	8	10	14	18	22	23	24	25	26	26	26	26	23	20	18	17	16	14	14	18	26
17	16	16	16	14	14	13	16	17	20	24	24	25	26	25.	25	24	25	23	21	18	16	16	14	14	19	26
18	13	14	14	14	14	15	14	17	19	21	23	24	26	26	25	23	24	22	18	18	18	17	17	14	19	26
19	16	16	16	16	16	15	15	17	19	21	22	23	20	14	18	19	17	14	10	7	4	3	2	1	14	23
20	0	-2	-3	-4	-6	-7	-7	-3	0	3	6	8	8	11	12	12	12	11	7	4	4	2	1	1	3	12
21	0	-1	-1	-1	-1	-2	-2	2	8	13	16	18	19	20	21	21	21	17	13	11	9	8	8	8	9	21
22	8	7	6	4	3	3	2	7	11	16	19	22	23	23	23	23	22	20	16	13	13	13	13	13	13	23
23	12	12	11	11	9	11	12	14	16	17	12	11	15	10	12	14	16	15	13	12	11	10	10	11	12	17
24	11	10	10	10	11	11	11	11	13	16	17	18	18	18	19	18	17	17	14	12	11	10	9	9	13	19
25	8	8	7	7	7	6	6	9	13	17	19	22	21	21	21	21	22	18	16	14	13	13	11	10	14	22
26	9	8	8	8	8	9	12	13	14	19	21	22	22	23	24	22	21	19	17	16	14	14	13	11	15	24
27	12	11	9	9	9	9	11	13	14	16	17	19	20	19	19	19	19	17	14	13	13	12	11	10	14	20
28	10	9	9	8	7	8	8	12	16	17	19	19	21	21	22	22	21	19	16	14	14	13	13	13	15	22
29	13	13	12	11	11	11	9	13	16	18	18	19	19	18	18	18	18	14	12	9	9	9	8	8	14	19
30	8	8	8	8	9	9	9	9	8	9	9	11	10	9	9	11	11	10	8	8	8	7	7	8	9	11
AV	12	11	11	10	10	10	10	13	16	19	21	22	22	23	23	23	22	21	18	15	14	13	12	12	16	
PK	16	16	16	16	17	16	16	20	24	28	29	30	31	30	29	29	29	27	25	23	22	21	19	16		31
MN	0	-2	-3	-4	-6	-7	-7	-3	0	3	6	8	8	9	9	11	11	10	7	4	4	2	1	1		

MONTHLY MINIMUM = -7

TEMPERATURE ■ 30M
DEGREE C

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	16	16	17	16	16	16	17	20	24	27	27	28	28	27	27	27	28	27	25	23	22	21	19	16	22	28
2	14	15	14	15	16	16	17	18	21	23	24	26	26	26	27	27	26	26	19	18	17	16	15	14	20	27
3	13	8	10	12	13	14	15	13	16	18	21	23	25	26	26	26	26	25	24	23	18	13	11	11	18	26
4	11	10	10	10	10	12	11	13	14	17	18	19	18	21	19	18	18	19	18	16	14	13	13	13	15	21
5	13	12	12	12	9	11	12	13	17	18	21	22	23	23	24	23	23	22	21	18	18	16	16	16	17	24
6	16	13	13	11	10	9	9	13	17	21	23	24	26	27	27	27	27	26	23	21	18	18	17	16	19	27
7	16	14	14	14	14	14	16	18	18	26	27	28	27	27	27	27	25	23	21	18	17	17	11	12	20	28
8	13	13	13	13	11	12	12	14	16	17	19	21	22	21	20	23	23	22	19	8	13	16	15	14	16	23
9	14	13	13	14	13	12	12	12	3	13	12	13	14	16	21	22	23	21	17	15	18	17	16	14	15	23
10	14	14	13	12	9	11	10	12	16	18	22	23	23	24	26	26	24	23	22	19	17	17	14	13	18	26
11	13	13	11	11	11	8	11	14	18	21	23	24	26	26	26	26	26	24	22	20	18	17	14	14	18	26
12	13	12	10	9	9	9	9	12	17	20	22	23	24	25	26	26	25	23	21	19	18	17	15	13	17	26
13	12	12	12	11	10	9	9	13	17	20	23	26	26	26	26	26	26	24	21	20	18	17	17	14	18	26
14	14	16	17	17	18	17	14	16	19	19	22	21	18	17	10	9	15	17	17	16	14	14	11	13	16	22
15	13	12	11	11	11	11	12	13	17	19	21	22	23	24	24	24	23	22	19	18	18	16	14	11	17	24
16	12	13	13	12	11	11	12	15	18	21	22	23	24	25	25	24	24	23	21	19	18	18	16	16	18	25
17	16	17	17	16	14	14	17	17	18	21	24	24	26	24	24	23	24	23	21	19	19	17	17	16	19	26
18	13	15	14	14	14	14	14	17	19	20	21	18	18	19	6	1	2	13	15	19	18	17	17	16	15	21
19	17	17	17	17	16	16	16	17	18	19	14	11	9	15	18	19	17	14	9	7	6	4	3	2	13	19
20	1	-2	-3	-4	-5	-6	-6	-4	-1	2	4	7	8	9	10	11	11	9	7	4	4	3	2	1	3	11
21	2	0	1	1	0	-1	-1	2	8	12	14	16	18	18	19	19	18	17	14	13	11	9	9	8	9	19
22	9	8	7	6	5	4	3	7	11	14	18	20	21	22	22	22	21	19	17	16	16	15	15	14	14	22
23	14	13	13	12	8	12	13	14	16	16	9	8	14	1	10	14	16	14	13	12	11	5	1	1	11	16
24	1	3	10	10	10	10	10	11	12	16	17	17	16	17	18	17	17	17	15	14	10	11	11	9	12	18
25	8	9	9	8	8	6	7	9	12	16	18	20	19	19	19	21	21	18	16	15	14	13	12	9	14	21
26	8	9	9	8	9	11	12	12	14	18	15	18	16	14	17	16	14	13	12	14	15	14	12	12	13	18
27	12	12	10	10	10	9	9	13	13	12	16	14	17	16	7	3	(IM)	(IM)	12	13	14	14	11	11	12	17
28	12	11	10	10	8	9	9	11	14	16	17	17	18	18	19	19	18	18	15	14	14	13	13	13	14	19
29	13	13	11	11	8	10	9	12	15	17	17	18	18	17	17	18	17	14	11	10	9	9	8	7	13	18
30	5	7	9	9	9	9	9	9	8	6	9	10	9	9	9	10	11	10	9	8	8	8	8	8	9	11
AV	12	11	11	11	10	10	11	13	15	17	19	19	20	20	20	20	20	20	17	16	15	14	12	12	15	
PK	17	17	17	17	18	17	17	20	24	27	27	28	28	27	27	27	28	27	25	23	22	21	19	16		28
MN	1	-2	-3	-4	-5	-6	-6	-4	-1	2	4	7	8	1	6	1	2	9	7	4	4	3	1	1		

MONTHLY MINIMUM = -6

TEMPERATURE @ 60M
DEGREE C

CB-TRACT
TRAILER AA23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	17	18	17	17	18	17	17	21	24	27	28	28	28	28	27	28	28	27	24	23	23	22	19	15	22	28
2	16	16	15	16	16	17	17	19	21	24	26	26	27	27	27	27	27	26	19	18	17	16	15	14	20	27
3	13	13	13	13	13	15	16	14	15	18	21	24	26	27	27	27	26	26	24	23	19	13	11	11	19	27
4	10	10	10	11	11	12	11	13	14	17	18	18	18	21	20	18	18	19	18	16	15	14	14	13	15	21
5	13	12	12	12	11	11	13	14	17	19	21	22	22	23	23	23	23	22	21	19	18	16	16	16	17	23
6	16	14	13	12	11	11	12	15	18	21	23	24	26	26	27	27	27	26	23	21	18	18	17	17	19	27
7	16	15	16	16	16	16	17	19	22	26	27	28	28	28	28	27	25	24	21	19	17	17	16	16	21	28
8	14	14	14	13	13	13	13	14	16	17	19	22	22	23	23	23	23	22	20	18	18	18	17	16	18	23
9	17	16	14	16	16	14	14	18	21	22	22	23	24	24	24	24	24	23	21	21	20	19	18	16	20	24
10	16	14	13	12	12	11	11	12	16	18	21	23	23	24	25	25	24	23	21	18	17	16	15	14	18	25
11	13	14	14	12	12	12	12	16	19	22	23	24	24	25	26	26	25	24	22	20	18	17	15	15	19	26
12	14	13	12	12	10	9	10	13	17	19	22	23	24	24	26	26	25	23	21	19	18	17	16	15	18	26
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14	16	17	17	17	18	17	15	17	20	21	23	22	19	21	23	23	18	19	18	16	14	15	13	13	18	23
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19	17	17	17	17	16	16	16	17	18	19	21	21	21	15	18	18	17	14	9	6	5	3	3	2	14	21
20	1	-2	-3	-4	-5	-6	-6	-4	-2	2	4	6	7	8	9	11	11	9	7	6	4	4	2	2	2	11
21	2	1	1	1	1	1	1	3	8	13	15	16	18	18	19	19	18	17	14	13	11	9	9	9	10	19
22	9	8	8	7	6	5	4	8	12	14	18	20	21	22	22	22	21	19	17	16	16	16	16	14	14	22
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27	12	11	9	10	11	11	11	13	14	16	16	18	18	18	18	18	18	17	14	14	14	14	13	13	14	18
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29	13	13	13	12	12	11	11	13	16	17	17	18	18	18	18	18	17	14	11	9	9	9	9	9	14	18
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AV	13	12	12	12	11	11	12	13	16	18	20	21	21	21	22	22	21	20	18	16	15	14	14	13	16	
PK	17	18	17	17	18	17	17	21	24	27	28	28	28	28	28	28	28	27	24	23	23	22	19	17		28
MN	1	-2	-3	-4	-5	-6	-6	-4	-2	2	4	6	7	8	9	10	10	9	7	6	4	3	2	2		

MONTHLY MINIMUM = -6

```
    DELTA TEMPERATURE 60-10M                                                                     CB-TRACT
    DEGREE C*100                                                                                 TRAILER AA23
                                                                                                 SEPT  1983
                                                                                                 CATHEDRAL BLUFFS SHALE OIL CO.

                                                       HOUR (LOCAL STANDARD TIME)

DAY    1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24  AVE PEAK


  1  183  239  128  183  189   61   78   28  -17 -122 -161 -206 -222 -139 -128 -167 -128 -100  -44  -50 -194  -11 -139   17  -30  239
  2  122  122  100   89  111  167  144  167   44  -94 -256 -189 -172 -178 -200 -178 -156 -128  -89  -89   28   56   17   50  -21  167
  3   17   94   61  117   72  161  156   44  -72 -133 -222 -189 -222 -206 -178 -167 -139 -100  -11  167 -183  -94  -39  -17  -45  167
  4  -33  -39  -17   61   67  167   67   33  -56 -150 -233 -178 -144 -211 -133  -89 -167 -156 -128   72  161  106  -89 -244  -56  167
  5 -244   50  -11  156  206  183  278  -33 -206 -156 -367 -144 -183 -217 -222 -183 -156 -122 -478   -6   -6   22   17  100  -72  278
  6  156   44 -167   83  128  178   83  150  -44 -717 -394 -272 -172 -194 -200 -167 -167 -128 -167  -72 -222   83  194  278  -71  278
  7  206  122   50  189  217   67   22 -144  -17  -83 -100 -133 -161 -172 -128 -122  -94 -106  -56  -94  -67  -72  -61 -100  -35  217
  8 -228 -150  -89  -22    0   -6    6 -256 -456 -317 -133 -244 -500 -300 -200 -183 -139 -117  -44  -83 -406 -533 -778 -217 -225    6
  9  139   67   94  111  128  117  178  133 -522 -361 -300 -189 -272 -244 -256 -317 -167 -117  -72   72  106   61  -22 -194  -76  178
 10  -11  -33  -33   33   72  100   56  -22  -44 -111 -233 -194 -239 -200 -250 -172 -133 -106 -117  -22 -128 -144  228  144  -65  228
 11   94  172  206  167   78  294  200   56 -144 -133 -250 -178 -194 -183 -172 -206 -167 -206 -194 -139 -556 -150  156   -6  -61  294
 12  133  117  117  239  106   67   17  -56  -67 -294 -294 -189 -211 -233 -228 -372 -300 -367 -611 -122   39  -44  -44  139 -103  239
 13   72  100   94  106   17  100  106    6 -106 -150 -211 -189 -394 -256 -172 -189 -167 -111 -383 -361 -350 -206  217  144  -95  217
 14  133  200   28   39   -6   78   33   33  -50  -78 -156 -239  -50  -94 -144 -150  -22  -44  -22   33   78  189  156  133    3  200
 15  117   56   67  139  183  167  194  106  -11 -144 -178 -167 -206 -189 -194 -172 -139 -111  -11   61  -39  -44 -139   83  -24  194
 16  244  117  183  239  267  267  300   78  -17 -117 -206 -183 -194 -194 -194 -172 -172 -133 -178   56  -22  150   78   17    9  300
 17  -17   -6   44   56   94  183 -183 -350  -67 -144 -444 -261 -283 -217 -256  -89  -94  -44   11  128  272  228  200  128  -46  272
 18  111  100   78   72   72   39   28  -56  -61  -83 -117 -161 -200 -200 -183 -267 -172  -94  -67 -128 -111  -78   11  117  -56  117
 19   11   39   33   39   33   44   28 -111  -72 -106 -133 -172 -133   22  -72  -94  -94  -67  -50  -33  -11  -11   11   17  -37   44
 20   39    0    6  -28  -17   17   39 -100 -150 -178 -267 -189 -161 -250 -211 -211 -183 -133  -22  100   61  156  117   89  -62  156
 21  178  178  100  183  150  206  183   56   11  -89 -167 -172 -183 -178 -178 -178 -200 -106   61  267  189  128  100   22   23  267
 22  172  133  133  217  172  189  161   94   50 -100 -144 -172 -217 -172 -167 -178 -156  -89   83  228  211  206  156  133   39  228
 23  150  122  189  172  172   72   28  -44  -67  -83  -61  -22  -83  -61  -78 -100  -89  -61  -11    6   28   56   33  -11   11  189
 24    0   28   28   33   28   22   22   33  -17 -139 -133 -111 -122 -111 -128  -94  -61  -78   50  178  106   83   67   94   -9  178
 25   78  106  211  106  128  139  139   50   11 -128 -211 -267 -183 -161 -133 -128 -144  -39   33   94   39   50   67   50   -4  211
 26  122  167  183  156  161  167  100   39   11  -50 -122 -144 -156 -167 -217 -133  -61  -33   44   56  150   78  -28    0   13  183
 27  -17  -33  -11   72   39   78   22  -67  -67  -83  -94 -133 -172 -222 -189 -178 -161 -100  -72  117   94  128  178  244  -26  244
 28  239  194  183  278  222  267  267   83  -44 -156 -150 -178 -156 -172 -178 -178 -133  -89  -78   61   33    6   17  -11   14  278
 29   22    6   11   39   83   28   33 -106  -94 -150 -222 -294 -144 -133 -261 -300  -94 -100  -56  -39  -11  -11   22   94  -70   94
 30   61   89  117  100   50   33   11  -11  -28  -44  -67 -106  -72  -56  -67  -83  -72  -44   11  -11    6   28   72   33   -2  117


 AV   75   80   71  114  107  122   93   -6  -79 -156 -201 -182 -194 -176 -177 -174 -138 -108  -89   15  -24   14   26   44  -39
 PK  244  239  211  278  267  294  300  167   50  -44  -61  -22  -50   22  -67  -83  -22  -33   83  267  272  228  228  278       300
 MN -244 -150 -167  -28  -17   -6 -183 -350 -522 -717 -444 -294 -500 -300 -261 -372 -300 -367 -611 -361 -556 -533 -778 -244

                                                       MONTHLY MINIMUM = -778
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BAROMETRIC PRESSURE
MILLIBARS

CB-TRACT
TRAILER AB23
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	799	799	799	799	799	800	800	800	800	800	799	799	799	798	798	798	797	797	797	798	798	798	799	800	799	800
2	799	798	798	798	798	798	798	798	798	798	798	798	797	797	796	796	796	796	797	798	798	797	797	797	797	799
3	796	796	796	796	796	796	796	797	797	797	796	795	794	793	793	792	792	791	791	791	792	794	795	795	794	797
4	795	794	794	793	793	793	793	794	794	794	794	793	793	793	792	792	792	792	792	793	793	793	793	793	793	795
5	793	793	793	792	793	793	793	793	794	794	793	793	793	792	792	792	792	792	793	794	795	795	795	796	793	796
6	795	796	796	796	796	796	797	797	797	797	797	796	796	796	795	795	795	794	794	795	795	795	795	795	796	797
7	795	795	795	795	795	796	796	795	796	795	795	795	794	794	793	792	793	793	793	794	794	794	794	794	794	796
8	795	794	794	794	795	795	795	795	796	796	796	795	795	794	794	794	794	794	794	794	795	795	795	795	795	796
9	795	795	795	795	796	796	796	796	796	796	796	796	795	795	795	795	795	795	795	796	796	796	797	798	796	798
10	798	799	799	799	799	799	800	800	800	800	800	799	799	798	798	797	797	797	797	798	798	798	798	799	799	800
11	799	799	798	798	798	798	798	799	799	799	798	798	797	797	797	796	796	796	796	797	797	798	798	798	798	799
12	798	798	798	798	798	798	799	799	799	798	798	797	797	797	796	796	796	793	792	795	795	796	797	798	797	799
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15	797	796	796	796	797	797	797	797	797	798	797	797	797	796	796	796	796	796	796	796	797	797	797	797	797	798
16	797	797	797	797	797	797	797	797	797	797	797	796	796	795	795	794	794	794	794	794	794	794	794	794	796	797
17	794	794	794	793	793	794	794	794	794	794	794	793	793	792	792	791	791	791	792	793	793	793	793	793	793	794
18	793	793	793	793	793	794	794	794	794	794	794	793	793	792	791	791	791	791	791	791	791	791	791	791	792	794
19	791	791	791	790	791	791	791	791	791	791	791	790	790	791	791	792	793	794	795	797	798	799	800	800	793	800
20	801	801	802	802	803	803	804	804	803	804	803	803	803	802	802	801	801	801	801	802	802	802	802	802	802	804
21	802	802	802	801	801	801	801	801	801	801	801	800	800	799	798	798	798	798	798	798	798	798	799	799	800	802
22	799	799	799	799	799	799	799	799	799	799	799	798	798	798	797	797	797	797	797	797	797	797	798	798	798	799
23	798	798	798	798	798	798	798	798	798	798	799	799	798	798	798	797	797	797	797	797	797	798	797	797	798	799
24	798	798	798	798	798	798	798	799	799	799	799	798	798	798	798	798	798	798	798	799	799	799	800	800	798	800
25	800	800	800	800	800	801	801	801	801	802	801	801	800	800	800	800	799	799	800	800	800	800	800	800	800	802
26	800	800	800	800	800	800	800	800	800	800	800	799	799	798	798	797	796	796	796	796	796	796	796	796	798	800
27	796	796	796	796	796	795	795	795	795	795	795	794	794	794	794	794	794	794	794	794	794	795	795	795	795	796
28	795	795	795	795	795	795	795	795	796	796	796	795	795	795	794	794	794	794	794	795	795	795	795	795	795	796
29	795	795	795	795	795	795	794	795	795	794	794	794	793	793	792	792	792	792	792	793	793	792	792	792	794	795
30	792	792	792	792	792	792	792	793	793	793	793	793	794	794	794	794	794	794	795	795	795	795	795	795	793	795
AV	797	797	797	796	797	797	797	797	797	797	797	796	796	796	795	795	795	795	795	796	796	796	796	797	796	
PK	802	802	802	802	803	803	804	804	803	804	803	803	803	802	802	801	801	801	801	802	802	802	802	802		804
MN	791	791	791	790	791	791	791	791	791	791	791	790	790	791	791	791	791	791	791	791	791	791	791	791		

MONTHLY MINIMUM = 790

```
      PRECIPITATION                                                            CB-TRACT
      CM*100                                                                   TRAILER AB23
                                                                               SEPT  1983
                                                                               CATHEDRAL BLUFFS SHALE OIL CO.

                                             HOUR (LOCAL STANDARD TIME)
DAY   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24   TL PEAK

  1                                                                                                  ( )
  2                                                                                                  ( )
  3                                                                                                  ( )
  4                                                                                                  ( )
  5                                                                                                  ( )
  6                                                                                                  ( )
  7                                                                                                  ( )
  8                                                                                                  ( )
  9                                                                                                  ( )
 10                                                                                                  ( )
 11                                                                                                  ( )
 12                                                                                                  ( )
 13                            30          28                                                         59   30
 14                                                                                                  ( )
 15                                                                                                  ( )
 16                                                                                                  ( )
 17                                                                                                  ( )
 18                                                                                                  ( )
 19                                                                                                  ( )
 20                                                                                                  ( )
 21                                                                                                  ( )
 22                                                                                                  ( )
 23                                                                                                  ( )
 24                                                 8           8          20                         36   20
 25                                                                                                  ( )
 26                                                                                                  ( )
 27                                                                                                  ( )
 28                                                                                                  ( )
 29                                                                                                  ( )
 30                                                                                                  ( )

TL  ( ) ( ) ( ) ( ) ( ) ( ) ( )  30 ( ) ( )  28 ( )   8 ( ) ( )   8 ( )  20 ( ) ( ) ( ) ( ) ( ) ( )   95
PK                               30          28       8           8        20                             30
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PRECIPITATION
CM*100

CB TRACT
MRI AD28
SEPT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1																							3	8	10
2	10																								10
3																						5	13	8	25
4	5		10		13																				28
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12			3			3	3																3		10
13																									
14																									
15																									
16																									
17																									
18																									
19							(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	( )
20	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	( )
21	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	( )
22	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	( )
23	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	( )
24	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	( )
25	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	( )
26	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)	(OE)															
27																									
28																									
29																									
30								18															3		20
TL	15		13		13	3	3	18														5	20	15	( )

STABILITY CLASS USING DT/DZ
DT 60-10M
WS 10M

CB-TRACT
TRAILER AA23
SEPT 1983
OCCIDENTAL OIL SHALE, INC.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE
1	F	F	F	F	F	E	F	E	E	A	A	B	B	B	B	A	B	B	D	D	B	E	C	E	D
2	E	F	F	F	F	F	F	F	E	B	B	B	C	D	D	C	B	B	B	B	E	E	E	E	D
3	E	F	E	F	E	F	F	E	D	A	A	B	B	C	D	C	D	B	E	F	B	C	D	E	D
4	D	D	E	E	E	E	E	E	D	A	A	B	A	A	A	B	A	A	A	E	F	F	B	B	C
5	A	E	E	F	F	F	F	D	B	B	B	B	B	C	C	B	B	B	B	E	E	E	E	F	D
6	F	E	A	F	F	F	F	F	D	A	A	A	A	B	B	B	A	B	A	D	A	F	F	F	C
7	F	F	E	F	F	E	E	B	E	C	B	B	B	B	C	C	C	D	D	D	D	D	D	B	D
8	B	C	C	E	E	E	E	A	A	B	B	B	B	C	C	C	B	B	D	C	B	B	B	B	C
9	F	E	F	E	F	F	F	F	B	C	C	C	D	C	C	C	C	B	D	E	F	E	E	B	D
10	E	D	D	E	E	F	E	E	D	A	A	A	B	B	A	B	B	B	A	E	A	A	F	F	C
11	F	F	F	F	F	F	F	E	A	A	B	B	C	C	B	B	B	B	A	A	A	A	F	E	C
12	F	F	F	F	F	E	E	D	D	A	A	A	A	A	A	B	B	B	A	A	E	D	D	F	C
13	E	F	F	F	( )	F	( )	E	A	A	A	B	B	B	B	D	B	B	A	B	A	A	( )	F	C
14	F	E	E	E	E	F	E	E	D	C	C	C	D	D	C	B	E	D	E	E	E	F	F	F	E
15	F	E	E	F	F	F	F	F	E	A	B	B	B	B	B	B	B	B	E	E	D	D	A	F	D
16	F	F	F	F	F	( )	F	F	E	B	B	B	B	B	B	B	B	B	B	E	E	F	F	E	D
17	( )	E	E	E	F	F	B	B	D	B	D	D	D	B	C	B	C	D	E	F	E	E	E	F	D
18	F	F	F	E	E	E	E	D	D	C	C	D	D	D	C	B	D	D	D	D	D	D	D	F	D
19	E	D	D	D	D	D	D	D	D	D	D	D	D	E	D	D	D	D	D	D	E	E	E	E	D
20	E	E	E	D	E	E	E	A	A	A	A	B	B	A	A	A	A	B	E	F	E	F	F	F	C
21	( )	F	( )	F	F	F	F	E	E	B	B	B	B	B	B	A	B	B	E	E	F	F	F	E	D
22	F	F	F	F	F	F	F	F	E	A	A	A	B	B	B	B	B	B	E	E	E	E	F	F	D
23	F	F	F	F	F	E	E	D	D	C	D	E	C	D	C	A	B	D	E	E	E	E	E	E	D
24	E	E	E	E	E	E	E	E	E	A	( )	A	B	B	B	B	D	C	E	F	F	F	E	F	D
25	F	F	F	( )	F	F	F	E	E	A	A	A	A	A	A	A	B	D	E	F	E	E	E	E	D
26	( )	( )	F	F	F	F	F	E	E	D	B	B	B	B	B	B	D	D	E	E	E	E	D	E	D
27	E	D	E	E	E	D	E	D	D	C	D	D	D	D	D	D	B	B	D	F	F	F	F	F	D
28	F	E	F	F	F	F	F	E	D	B	B	B	B	B	B	B	B	B	C	E	E	E	E	E	D
29	E	E	E	E	E	E	E	A	B	B	B	B	B	B	C	B	B	C	D	D	E	E	E	F	D
30	E	F	F	F	E	E	E	E	D	D	D	B	D	D	D	C	D	D	E	E	D	D	D	D	D
AVE	E	E	E	F	F	E	E	D	D	B	B	B	B	C	B	B	C	C	D	D	D	E	E	E	D

TOTAL OCCURRENCES: A= 76 B=150 C= 45 D=110 E=174 F=154 HOURS MISSING= 11

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

NITRIC OXIDE (NO)

CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(9/01/83 TO 9/30/83)

CONCENTRATION MAX UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	1	2	1	1	1	2	2	2	2	2	1	1	1	2	2	1	1	
GT 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
60. - 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
55. - 60. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
50. - 55. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
45. - 50. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
40. - 45. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
35. - 40. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
30. - 35. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
25. - 30. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
20. - 25. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
15. - 20. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
10. - 15. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
5. - 10. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 5. :	13	15	9	24	21	25	33	40	72	145	122	35	27	45	50	28	11 :	715
TOTAL :	13	15	9	24	21	25	33	40	72	145	122	35	27	45	50	28	11	715
MEAN CONC.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0 = NO OBSERVATIONS

(10/19/83-RPI)

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

OXIDES OF NITROGEN (NOX) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(9/01/83 TO 9/30/83)

CONCENTRATION MAX UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	3	3	3	3	3	3	3	3	3	3	3	3	3	3	5	3	3	
GT 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
60. - 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
55. - 60. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
50. - 55. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
45. - 50. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
40. - 45. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
35. - 40. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
30. - 35. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
25. - 30. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
20. - 25. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
15. - 20. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
10. - 15. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
5. - 10. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0 :	1
LT 5. :	13	15	9	24	21	25	33	40	72	145	122	35	27	45	49	28	11 :	714
TOTAL :	13	15	9	24	21	25	33	40	72	145	122	35	27	45	50	28	11	715
MEAN CONC.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

NITROGEN DIOXIDE (NO2) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(9/01/83 TO 9/30/83)

CONCENTRATION MAX UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	1	3	1	3	1	1	3	3	3	3	3	1	1	3	3	3	3	
GT 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
60. - 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
55. - 60. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
50. - 55. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
45. - 50. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
40. - 45. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
35. - 40. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
30. - 35. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
25. - 30. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
20. - 25. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
15. - 20. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
10. - 15. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
5. - 10. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 5. :	13	15	9	24	21	25	33	40	72	145	122	35	27	45	50	28	11 :	715
TOTAL :	13	15	9	24	21	25	33	40	72	145	122	35	27	45	50	28	11	715
MEAN CONC.	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

0 = NO OBSERVATIONS

(10/19/83-RPI)

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

OZONE (O3)

CATHEDRAL BLUFFS SHALE OIL

TRAILER AH23 PERIOD(9/01/83 TO 9/30/83)

CONCENTRATION UG/M**3	WIND DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	80	84	68	80	80	80	84	84	94	101	115	111	88	99	82	82	0	
GT 140. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
130. - 140. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
120. - 130. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
110. - 120. :	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0 :	5
100. - 110. :	0	0	0	0	0	0	0	0	0	1	5	2	0	0	0	0	0 :	8
90. - 100. :	0	0	0	0	0	0	0	0	2	4	8	3	0	1	0	0	0 :	18
80. - 90. :	2	2	0	2	1	2	4	2	2	10	7	2	1	1	6	2	0 :	46
70. - 80. :	1	1	0	1	4	5	2	3	6	10	10	1	1	6	16	6	0 :	73
60. - 70. :	0	0	1	2	3	3	8	8	12	12	10	2	2	4	3	0	0 :	70
50. - 60. :	0	2	0	3	1	4	0	0	3	4	1	2	2	3	0	0	0 :	25
40. - 50. :	2	0	0	3	0	0	0	1	0	1	4	3	2	0	0	1	0 :	17
30. - 40. :	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0 :	2
20. - 30. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 20. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
TOTAL :	5	5	1	11	9	14	14	15	25	42	49	16	9	15	25	9	0	264
PERCENT	2.	2.	0.	4.	3.	5.	5.	6.	9.	16.	19.	6.	3.	6.	9.	3.	0.	100.

0 = NO OBSERVATIONS

```
              NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

      CARBON MONOXIDE (CO)                                                          CATHEDRAL BLUFFS SHALE OIL

                                TRAILER   AB23      PERIOD( 9/01/83 TO  9/30/83)
                                                          WIND DIRECTION
                  N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
CONCENTRATION
    MAX          45   45   45   45   45   45   45   45   45   45   45   45   45   45   45   45   45
  UG/M**3
              .............................................................................................
   GT 1300. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
200. -1300. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
100. -1200. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
000. -1100. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
900. -1000. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
800. - 900. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
700. - 800. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
600. - 700. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
500. - 600. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
400. - 500. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
300. - 400. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
200. - 300. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
100. - 200. :     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
   LT  100. :    13   15    9   24   21   25   33   40   72  145  122   35   27   45   51   28   11 :    716
    TOTAL   :    13   15    9   24   21   25   33   40   72  145  122   35   27   45   51   28   11      716
              .............................................................................................
    MEAN         31   32   35   33   35   34   34   36   38   35   34   35   32   32   29   32   37       34
    CONC.

              0 = NO OBSERVATIONS
```

(10/19/83-RPI)

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

SULFUR DIOXIDE (SO2) CATHEDRAL BLUFFS SHALE OIL

TRAILER AH23 PERIOD(9/01/83 TO 9/30/83)

CONCENTRATION UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	FSE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	0	2	10	10	13	10	10	10	15	13	13	10	5	10	10	10	10	
GT 13.	0	0	0	0	1	0	0	0	3	1	1	0	0	0	0	0	0	6
12. - 13.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11. - 12.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10. - 11.	0	0	1	2	2	1	3	4	8	8	6	2	0	1	1	4	1	44
9. - 10.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8. - 9.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7. - 8.	0	0	2	1	1	3	3	3	14	20	12	5	0	5	2	1	3	75
6. - 7.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5. - 6.	0	0	0	1	1	1	2	8	7	12	7	0	1	0	0	0	0	40
4. - 5.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3. - 4.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2. - 3.	0	1	0	1	3	1	0	2	4	4	8	1	2	3	4	0	1	35
1. - 2.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LT 1.	13	14	6	19	13	19	25	23	36	100	88	27	24	36	43	23	6	515
TOTAL	13	15	9	24	21	25	33	40	72	145	122	35	27	45	50	28	11	715
MEAN CONC.	0	0	2	1	2	1	1	2	3	2	1	1	0	1	0	1	3	2

0 = NO OBSERVATIONS

(10/19/83-RPI)

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

HYDROGEN SULFIDE (H2S) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(9/01/83 TO 9/30/83)

CONCENTRATION UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	4	4	1	4	2	4	6	6	6	8	6	5	2	5	6	5	0	
GT 13. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
12. - 13. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
11. - 12. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
10. - 11. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
9. - 10. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
8. - 9. :	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0 :	1
7. - 8. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
6. - 7. :	0	0	0	0	0	0	1	1	2	0	2	0	0	0	1	0	0 :	7
5. - 6. :	0	0	0	0	0	0	0	0	6	1	0	3	0	4	6	1	0 :	21
4. - 5. :	3	2	0	3	0	2	1	3	2	14	21	4	0	5	13	4	0 :	77
3. - 4. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
2. - 3. :	4	1	0	5	3	7	5	7	15	27	26	5	1	7	8	4	0 :	125
1. - 2. :	0	5	2	7	7	4	6	7	6	15	20	7	14	17	11	5	0 :	133
LT 1. :	7	7	7	9	11	12	20	22	41	87	53	16	12	12	9	15	11 :	351
TOTAL :	14	15	9	24	21	25	33	40	72	145	122	35	27	45	48	29	11	715
MEAN CONC.	1	1	0	1	0	1	1	1	1	1	1	1	0	1	2	1	0	1

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

10 METER LEVEL — CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(9/01/83 TO 9/30/83)

WIND SPEED MAX METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
	5	4	3	2	3	2	3	4	7	8	8	8	5	7	8	6	0	
GT 11. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
8. - 11. :	0	0	0	0	0	0	0	0	0	1	5	1	0	0	2	0	0 :	9
5. - 8. :	1	0	0	0	0	0	0	0	9	28	32	3	3	10	2	1	0 :	89
3. - 5. :	1	3	1	0	1	0	2	12	33	48	31	9	4	16	17	5	0 :	183
1. - 3. :	6	9	0	11	14	18	16	22	13	46	35	14	13	14	27	15	0 :	273
LT 1. :	6	3	8	13	6	7	15	6	17	22	20	8	7	5	4	8	0 :	155
TOTAL :	14	15	9	24	21	25	33	40	72	145	123	35	27	45	52	29	0	709
PERCENT	2.	2.	1.	3.	3.	4.	5.	6.	10.	20.	17.	5.	4.	6.	7.	4.	0.	100.

0 = NO OBSERVATIONS

(10/19/83-RPI)

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

30 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(9/01/83 TO 9/30/83)

	WIND DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
WIND SPEED MAX METERS/SEC	7	5	2	3	5	5	4	8	10	12	12	11	8	10	12	9	0	
GT 11. :	0	0	0	0	0	0	0	0	0	4	3	1	0	0	2	0	0 :	10
8. - 11. :	0	0	0	0	0	0	0	1	8	20	19	2	2	5	1	1	0 :	59
5. - 8. :	3	1	0	0	1	1	0	14	24	57	27	4	9	14	9	0	0 :	164
3. - 5. :	1	3	0	1	2	8	16	14	20	28	15	11	5	21	16	4	0 :	165
1. - 3. :	8	5	2	10	11	13	12	14	13	23	14	11	8	8	23	13	0 :	188
LT 1. :	8	6	5	3	3	8	13	7	12	10	10	11	10	6	5	10	0 :	127
TOTAL :	20	15	7	14	17	30	41	50	77	142	88	40	34	54	56	28	0	713
PERCENT	3.	2.	1.	2.	2.	4.	6.	7.	11.	20.	12.	6.	5.	8.	8.	4.	0.	100.

0 = NO OBSERVATIONS

(10/19/83-RPI)

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

60 METER LEVEL — CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(9/01/83 TO 9/30/83)

WIND DIRECTION

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
WIND SPEED MAX METERS/SEC	8	6	1	2	6	6	6	9	12	13	13	12	8	11	13	10	0	
GT 11. :	0	0	0	0	0	0	0	0	3	12	6	1	0	1	2	0	0 :	25
8. - 11. :	1	0	0	0	0	0	0	3	15	28	21	3	5	7	1	1	0 :	85
5. - 8. :	1	4	0	0	1	1	1	15	26	53	27	5	5	15	10	2	0 :	166
3. - 5. :	2	1	0	0	4	8	15	17	17	22	11	13	6	20	24	6	0 :	166
1. - 3. :	12	3	2	5	8	9	13	8	11	19	13	10	12	6	18	15	0 :	164
LT 1. :	4	3	3	3	4	5	9	9	9	10	7	12	10	9	12	2	0 :	111
TOTAL :	20	11	5	8	17	23	38	52	81	144	85	44	38	58	67	26	0	717
PERCENT	3.	2.	1.	1.	2.	3.	5.	7.	11.	20.	12.	6.	5.	8.	9.	4.	0.	100.

0 = NO OBSERVATIONS

(10/19/83-RPI)

```
FIVE MAXIMUM SLIDING AVERAGE                                     C-B TRACT
UG/M**3                                                          SITE AB23
                                                                 SEPT 1983
                                                                 CATHEDRAL BLUFFS SHALE OIL CO.

     COMPONENT     AVG. TIME     RANK     DAY     HOUR(BEG)     VALUE
       S02            3 HR
                                   1       26        24          13.1
                                   2       26        12          12.2
                                   3       26         7          11.3
                                   4       27         4          11.3
                                   5       24         4          10.5
       S02           24 HR
                                   1       26         7          10.5
                                   2       23        17           9.4
                                   3       25         1           9.1
                                   4       27         7           7.9
                                   5       28         7           6.1
       CO             1 HR
                                   1        2         8          50.0
                                   2        2         9          50.0
                                   3        3         3          50.0
                                   4        3         5          50.0
                                   5        3         6          50.0
       CO             8 HR
                                   1       14        24          50.0
                                   2       18        22          50.0
                                   3       19         6          50.0
                                   4       24         2          50.0
                                   5       24        10          50.0
       03             1 HR
                                   1        3        14         115.8
                                   2        3        15         113.8
                                   3        2        16         111.8
                                   4        2        17         111.8
                                   5        3        16         111.8
       PART          24 HR
                                   1       19         1          46.9
                                   2       11         1          34.7
                                   3       15         1          24.6
                                   4        7         1          22.6
                                   5        3         1          22.4
```

DATA ACQUISITION INSTRUMENT EFFICIENCY
CATHEDRAL BLUFFS SHALE OIL COMPANY
A.Q. TRAILER AB23

SEPTEMBER 1983

GASEOUS PARAMETERS

NOX: 100 %

NO: 100

NO2: 100

O3: 37

CO: 100

SO2: 100

H2S: 100

PARTICULATES: 100 %

METEOROLOGICAL PARAMETERS

WIND SPEED	
10 M:	100 %
30 M:	100
60 M:	100
WIND DIRECTION	
10 M:	100
30 M:	100
60 M:	100
SIGMA HORIZONTAL WIND DIRECTION	
10 M:	100
30 M:	100
60 M:	100
TEMPERATURE	
10 M:	100
30 M:	100
60 M:	100
DELTA TEMPERATURE:	100
RELATIVE HUMIDITY:	100
SOLAR RADIATION:	100
BAROMETRIC PRESSURE:	100
PRECIPITATION:	100

OCTOBER

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NITRIC OXIDE
(UG/M3)

CB-TRACT
TRAILER A823
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	1	1	0	1	0	1	1	0	1	1	0	1	0	1	1	1	0	0	1	0	0	2	1	2
2	0	1	0	1	1	1	1	1	1	0	1	1	0	1	1	1	0	1	1	1	1	0	1	2	1	2
3	1	1	1	1	1	1	1	0	1	0	0	1	0	1	1	0	1	1	1	1	1	1	1	2	1	2
4	1	1	1	0	1	0	1	1	1	0	1	0	0	0	1	1	1	1	1	1	1	0	1	2	1	2
5	0	1	1	0	0	1	1	0	1	1	0	1	0	1	0	1	0	1	0	0	0	1	0	1	1	1
6	0	1	1	1	1	1	1	1	1	1	0	0	1	0	1	0	1	0	0	0	0	1	0	2	1	2
7	1	1	1	0	0	1	0	0	0	1	1	1	0	0	0	0	1	0	0	0	0	1	1	1	1	1
8	0	1	1	0	1	0	1	1	0	1	1	1	1	1	1	0	0	0	1	1	1	0	0	2	1	2
9	1	0	0	0	0	1	1	1	0	1	0	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1
10	1	1	0	0	0	0	0	1	(CA)	(CA)	(CA)	(CA)	2	2	1	2	2	0	1	1	1	1	1	2	1	2
11	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
12	1	1	0	1	1	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
13	1	1	1	1	1	0	4	1	0	0	(CA)	1	1	1	1	1	1	1	0	1	1	1	1	2	1	4
14	0	1	1	1	1	1	0	1	1	2	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	2
15	1	1	1	0	0	0	0	1	1	1	0	1	0	0	1	1	0	0	0	0	1	0	0	1	1	1
16	1	1	1	1	0	1	0	0	1	0	0	0	0	1	1	0	0	0	1	0	1	1	0	1	1	1
17	0	1	0	1	0	1	0	1	1	1	0	1	1	0	0	0	1	0	0	1	1	1	0	1	1	1
18	1	0	1	1	0	1	0	1	1	1	0	1	0	0	1	0	1	1	1	1	1	1	0	1	1	1
19	0	0	0	0	1	0	1	0	1	1	1	1	0	1	0	0	1	0	0	0	0	1	0	1	1	1
20	1	0	0	0	1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	1	0	1	0	2	1	2
21	0	1	0	1	0	1	1	1	1	1	0	0	1	0	0	1	0	0	0	1	0	0	0	1	1	1
22	0	0	1	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2
23	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	0	1	0	1	0	1	1	1	1	1	1
24	1	1	1	0	1	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1
25	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
26	1	0	0	0	0	0	0	0	0	2	0	0	(CA)	1	0	0	0	0	0	0	0	0	0	0	0	2
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
31	0	1	0	0	0	0	0	0	0	0	(CA)	(CA)	1	0	1	1	1	1	1	1	1	1	0	1	1	1
AV	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	1	1	0	1	1	
PK	1	1	1	1	1	1	4	1	1	2	1	1	2	2	1	2	2	1	1	1	1	1	1	2		4

OXIDES OF NITROGEN
(UG/M3)

CB-TRACT
TRAILER AB23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	2	2	2	2	2	0	0	2	2	2	2	2	2	2	0	2	2	2	2	0	2	2	2	0	1	2
2	2	0	0	2	0	0	0	0	0	2	0	2	2	0	0	0	2	0	2	0	0	2	0	2	1	2
3	0	2	2	0	0	0	2	2	2	2	2	2	2	2	0	2	2	0	2	2	2	2	2	2	1	2
4	2	2	2	4	2	2	0	2	2	2	4	2	2	2	2	2	0	2	0	0	2	0	0	2	2	4
5	2	2	2	2	2	2	2	4	4	2	2	4	2	2	2	2	2	2	2	0	2	0	0	2	2	4
6	2	0	4	2	2	2	0	0	2	2	2	2	2	2	2	2	2	0	2	2	2	0	2	2	2	4
7	2	2	2	2	0	0	0	0	4	2	2	2	0	0	2	2	2	2	0	0	2	0	2	0	1	4
8	4	2	2	2	0	2	2	2	2	0	2	2	4	0	2	2	2	0	2	2	2	0	2	2	2	4
9	2	2	4	2	2	2	4	2	4	4	2	2	2	0	2	2	2	0	2	2	2	2	2	4	2	4
10	4	2	2	2	2	2	2	4	(CA)	(CA)	(CA)	(CA)	4	4	4	2	2	2	2	2	2	0	2	0	2	4
11	2	4	2	0	2	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	2	0	0	1	4
12	2	2	2	2	2	2	2	2	4	6	4	2	2	2	2	2	2	2	0	0	2	0	2	2	2	6
13	2	2	2	0	2	2	8	4	4	4	(CA)	2	2	2	2	2	2	4	2	2	4	4	4	2	3	8
14	4	2	0	2	2	2	2	2	4	2	2	2	2	2	2	2	2	2	2	2	0	2	2	0	2	4
15	2	2	0	2	0	0	2	2	2	0	0	2	2	2	2	0	2	2	2	2	2	2	2	0	1	2
16	0	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	0	0	2	2	0	1	2
17	2	2	2	0	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2	2	4	4	2	4
18	4	4	4	2	2	0	2	2	2	2	2	2	2	2	2	2	4	2	4	2	2	2	4	4	2	4
19	4	2	2	2	2	2	2	2	2	4	2	2	2	2	2	2	2	9	6	4	2	2	2	2	3	9
20	2	2	4	2	2	2	2	4	6	4	8	4	4	4	4	2	2	2	4	2	2	2	2	2	3	8
21	2	2	2	4	4	2	4	2	2	2	4	2	2	2	2	2	0	0	2	2	2	0	2	2	2	4
22	2	2	2	2	0	0	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	2	4
23	2	2	2	2	2	4	2	2	2	2	2	2	2	2	2	0	0	2	4	2	0	2	0	0	2	4
24	2	2	2	2	4	4	4	4	2	2	2	2	0	2	2	2	2	4	2	0	4	2	2	2	2	4
25	2	2	2	0	2	4	2	2	2	4	8	8	6	6	2	4	4	2	4	4	2	4	2	2	3	8
26	2	4	2	2	2	2	2	2	4	13	4	4	(CA)	4	2	2	4	2	2	2	2	2	4	2	3	13
27	2	2	2	2	2	2	2	2	2	4	4	4	2	2	2	2	4	2	4	2	4	4	2	4	3	4
28	4	4	4	2	4	2	4	2	4	4	4	4	2	2	2	4	4	4	4	2	2	4	2	4	3	4
29	4	4	4	2	4	2	6	4	4	4	4	4	4	6	4	4	8	4	4	4	4	4	4	4	4	8
30	4	4	2	4	2	4	4	4	4	4	4	4	4	4	4	4	4	2	4	6	4	4	4	4	4	6
31	4	4	4	4	4	4	4	6	4	6	(CA)	(CA)	8	6	4	6	4	4	4	4	6	4	2	4	4	8
AV	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
PK	4	4	4	4	4	4	8	6	6	13	8	8	8	6	4	6	8	9	6	6	6	4	4	4		13

NITROGEN DIOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	2	2	0	0	2	0	0	0	0	2	0	0	2	0	0	0	0	0	2	0	0	2	2	0	1	2
2	2	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	2	0	0	0	0	2	0	0	0	2
3	0	0	0	0	0	0	0	2	0	2	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	2
4	0	0	0	4	0	2	0	0	0	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	1	4
5	2	0	0	2	2	0	0	4	2	0	2	2	2	0	2	0	2	0	2	0	2	0	0	0	1	4
6	2	0	2	0	0	0	0	0	0	0	2	2	0	2	0	2	0	0	2	2	2	0	2	0	1	2
7	0	0	0	2	0	0	0	0	4	0	0	0	0	0	2	2	0	2	0	0	2	0	0	0	1	4
8	4	0	0	2	0	2	0	0	2	0	0	0	2	0	0	2	2	0	0	0	0	0	2	0	1	4
9	0	2	4	2	2	0	2	0	4	2	2	0	0	0	2	0	0	0	0	0	0	0	2	2	1	4
10	2	0	2	2	2	2	2	2	(CA)	(CA)	(CA)	(CA)	0	0	2	0	0	2	0	0	0	0	0	0	1	2
11	0	2	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
12	0	0	2	0	0	0	2	0	2	4	2	2	2	2	2	2	2	2	0	0	2	0	2	0	1	4
13	0	0	0	0	0	2	2	2	4	4	(CA)	0	0	0	0	0	0	2	2	0	2	2	2	0	1	4
14	4	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	4
15	0	0	0	2	0	0	2	0	0	0	0	0	2	2	0	0	2	2	2	2	0	2	2	0	1	2
16	0	0	0	0	2	0	2	2	0	2	2	0	2	0	0	2	2	2	0	0	0	0	2	0	1	2
17	2	0	2	0	2	0	2	0	0	0	2	0	0	2	2	2	0	2	2	0	0	0	4	2	1	4
18	2	4	2	0	2	0	2	0	0	0	2	0	2	2	0	2	2	0	2	0	0	0	4	2	1	4
19	4	2	2	2	0	2	0	2	0	2	0	0	2	0	2	2	0	9	6	4	2	0	2	0	2	9
20	0	2	4	2	0	0	0	4	4	2	6	2	2	2	4	0	0	0	4	0	2	0	2	0	2	6
21	2	0	2	2	4	0	2	0	0	0	4	2	0	2	2	0	0	0	2	0	2	0	2	0	1	4
22	2	2	0	2	0	0	2	4	0	0	0	0	2	2	2	2	2	0	2	2	2	2	4	0	1	4
23	0	0	2	2	0	2	0	0	0	2	0	0	0	0	2	0	0	2	2	2	0	0	0	0	1	2
24	0	0	0	2	2	4	4	2	0	0	2	2	0	2	2	2	2	4	2	0	4	2	2	0	2	4
25	2	2	2	0	2	4	2	2	0	4	6	6	6	6	2	4	4	2	4	4	2	4	2	2	3	6
26	0	4	2	2	2	2	2	2	4	9	4	4	(CA)	2	2	2	4	2	2	2	2	2	4	2	3	9
27	2	2	2	2	2	2	2	2	2	4	4	4	2	2	2	2	4	2	4	2	4	4	2	4	3	4
28	4	4	4	2	4	2	4	2	4	4	4	4	2	2	2	4	4	4	4	2	2	4	2	2	3	4
29	4	4	4	2	4	2	6	4	4	4	4	4	4	6	4	4	8	4	4	4	4	4	4	4	4	8
30	4	4	2	4	2	4	4	4	4	4	4	4	4	4	4	4	4	2	4	6	4	4	4	2	4	6
31	4	2	4	4	4	4	4	6	4	6	(CA)	(CA)	6	6	2	4	2	2	2	2	4	2	2	2	3	6
AV	2	1	1	1	1	1	2	1	1	2	2	1	2	1	1	1	1	2	2	1	1	1	2	1	1	
PK	4	4	4	4	4	4	6	6	4	9	6	6	6	6	4	4	8	9	6	6	4	4	4	4		9

OZONE
(UG/M3)

CB-TRACT
TRAILER AB23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	( )	( )
2	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	( )	( )
3	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	( )	( )
4	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	( )	( )
5	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	(IM)	63	63	63	63	61	78	59	55	49	45	41	45	41	45	41	54	78
6	43	47	45	47	49	55	51	51	53	59	63	63	63	63	63	63	61	57	57	57	49	55	53	55	55	63
7	55	57	51	49	51	55	51	49	51	61	65	63	63	57	53	53	57	49	41	45	43	43	51	49	53	65
8	45	51	45	47	49	51	51	49	45	53	63	67	69	73	67	65	61	61	51	53	51	57	55	53	55	73
9	49	53	53	51	51	49	51	49	51	59	59	57	57	59	59	59	57	57	53	49	49	51	55	57	54	59
10	53	55	51	49	49	43	43	45	55	71	71	76	76	74	71	69	69	67	65	57	55	59	51	53	59	76
11	41	37	39	45	41	41	41	37	47	53	57	57	61	65	67	67	65	63	63	59	59	59	57	57	53	67
12	53	55	59	57	63	61	51	47	55	69	71	74	73	71	69	69	69	67	61	59	61	61	65	65	62	74
13	65	67	63	61	59	57	59	55	59	(CA)	69	69	69	65	65	69	69	67	65	67	69	63	51	61	63	69
14	57	65	65	57	61	65	63	65	67	73	73	69	69	69	67	67	69	67	63	53	47	41	33	35	61	73
15	41	37	47	51	57	53	53	51	67	69	69	71	71	71	73	76	73	67	57	55	59	63	57	59	60	76
16	57	61	53	59	55	55	57	51	53	63	71	73	73	71	71	69	69	65	63	65	69	67	69	67	63	73
17	63	69	65	61	63	57	55	51	57	65	74	76	78	78	78	78	74	71	67	67	69	69	69	69	68	78
18	63	59	63	69	69	59	55	53	53	63	67	69	69	69	71	73	71	67	63	61	63	61	63	63	64	73
19	59	65	59	57	51	47	49	47	59	67	71	76	80	82	80	80	80	67	65	63	63	63	63	67	65	82
20	63	67	63	67	69	69	67	61	59	71	73	80	80	80	80	80	80	74	65	67	74	76	78	73	71	80
21	71	74	71	73	74	76	74	71	65	69	82	84	82	84	80	80	78	76	65	69	73	71	71	69	74	84
22	67	74	71	71	67	71	73	65	65	65	76	80	78	76	76	76	74	69	69	69	73	71	73	74	72	80
23	74	78	78	74	74	78	74	73	74	80	80	80	78	78	80	80	80	80	78	80	78	76	69	69	77	80
24	65	63	53	51	53	43	45	41	45	53	55	61	63	65	65	65	63	63	67	63	61	59	59	57	57	67
25	51	53	51	59	53	49	53	45	39	53	61	67	(CA)	73	80	76	69	65	57	57	63	63	63	63	59	80
26	53	61	63	61	61	63	61	61	59	55	67	67	(CA)	74	74	76	71	63	57	61	63	65	67	67	64	76
27	67	73	78	76	73	76	76	71	65	63	69	78	80	80	80	82	73	74	67	67	73	71	73	76	73	82
28	71	74	73	73	73	71	71	69	67	74	78	82	80	84	88	86	84	80	74	69	69	73	76	78	76	88
29	80	78	78	78	80	80	78	71	69	78	84	88	88	88	84	86	76	76	74	78	76	78	78	80	80	88
30	74	82	86	88	82	88	84	78	76	73	82	86	82	82	86	82	80	80	80	78	78	76	76	71	81	88
31	71	74	74	73	71	67	63	61	59	57	65	69	(CA)	(CA)	69	65	63	61	53	49	45	47	55	57	62	74
AV	60	63	61	62	61	61	60	56	58	64	69	72	73	73	73	72	70	67	62	61	62	62	62	62	64	
PK	80	82	86	88	82	88	84	78	76	80	84	88	88	88	88	86	84	80	80	80	78	78	78	80		88

CARBON MONOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	50	50	50	50	50	50	50	60	50	60	60	60	50	50	50	50	50	50	50	50	50	60	60	60	49	60
2	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
3	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
4	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
5	50	50	50	50	50	50	50	60	50	50	50	50	50	30	30	50	30	50	50	50	50	50	50	50	45	60
6	50	50	50	50	50	50	50	50	50	50	30	30	30	30	30	30	30	50	50	50	50	50	50	50	43	50
7	50	30	50	50	50	50	50	50	50	30	30	30	30	30	50	50	50	50	50	50	50	50	50	50	43	50
8	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
9	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
10	50	50	50	50	50	50	50	50	(CA)	(CA)	(CA)	(CA)	50	50	50	50	50	50	50	50	50	50	50	50	46	50
11	50	50	50	50	50	50	50	50	50	30	30	50	50	30	50	50	50	50	50	30	30	50	30	30	43	50
12	30	30	30	30	30	30	30	30	20	10	0	10	10	10	0	10	20	20	20	20	20	20	20	20	23	30
13	30	30	30	30	30	30	50	50	0	10	20	20	20	20	20	20	20	20	20	20	20	20	30	20	27	50
14	30	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	46	50
15	50	50	50	50	50	50	50	50	50	30	30	30	30	30	30	30	30	50	50	30	30	30	30	30	40	50
16	50	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	35	50
17	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	50	50	35	50
18	50	50	50	30	30	30	30	50	50	50	50	50	50	50	50	30	30	50	50	50	50	50	50	50	43	50
19	50	50	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	35	50
20	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	34	30
21	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	34	30
22	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	34	30
23	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	34	30
24	30	30	30	30	30	30	30	30	30	30	50	50	50	50	30	50	50	50	50	30	30	30	30	30	38	50
25	50	30	30	30	30	30	30	30	30	30	30	30	30	50	50	30	50	50	50	50	50	50	50	50	40	50
26	50	50	50	50	50	50	50	50	50	50	30	50	(CA)	30	30	30	30	30	30	50	30	30	30	30	40	50
27	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	34	30
28	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	34	30
29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	50	50	30	50	30	50	50	30	37	50
30	30	30	30	30	30	30	30	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	43	50
31	50	50	50	50	50	50	50	50	50	50	(CA)	(CA)	50	50	60	60	60	60	60	60	60	60	60	60	51	60
AV	41	40	40	40	40	40	40	42	39	38	38	39	39	38	39	39	40	41	41	40	40	41	41	40	40	
PK	50	50	50	50	50	50	50	60	50	60	60	60	50	50	60	60	60	60	60	60	60	60	60	60		60

SULFUR DIOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	10	5	8	8	5	5	5	8	5	8	5	8	8	8	5	5	8	5	5	5	3	5	5	5	6	10
2	5	5	8	3	8	5	5	5	5	5	5	5	5	5	8	5	5	3	3	5	5	3	3	3	5	8
3	3	5	5	3	5	3	5	5	5	5	5	5	5	3	3	3	3	3	3	0	0	0	0	3	3	5
4	0	3	0	3	3	3	0	3	3	5	5	3	5	5	3	5	3	5	5	5	5	3	3	3	3	5
5	3	5	3	0	5	3	5	3	5	5	8	5	5	5	3	5	3	3	5	5	3	5	3	5	4	8
6	0	3	5	0	3	0	5	5	3	5	5	3	5	5	0	3	3	5	3	3	3	3	0	3	3	5
7	3	3	3	3	3	3	3	0	3	5	5	3	3	5	0	3	3	5	3	3	5	5	5	3	3	5
8	3	3	5	5	8	5	3	3	5	8	8	5	8	5	5	8	5	5	8	5	5	5	3	5	5	8
9	5	5	3	5	5	3	3	5	5	5	5	5	5	5	5	3	0	5	5	3	3	5	5	5	4	5
10	5	8	5	8	5	5	5	5	(CA)	(CA)	(CA)	(CA)	8	5	3	5	5	5	5	3	5	3	5	3	5	8
11	8	5	5	3	5	10	10	8	10	10	13	10	10	10	10	8	8	5	8	8	8	8	8	8	8	13
12	10	10	8	10	10	10	8	10	16	13	13	10	16	10	8	8	8	10	5	8	8	8	8	5	10	16
13	5	8	10	8	10	10	8	13	10	10	8	10	10	10	8	8	8	8	8	5	8	3	3	5	8	13
14	3	5	5	5	5	5	5	3	3	5	3	3	8	3	3	3	3	3	3	3	3	3	3	0	3	8
15	5	0	0	3	5	5	3	5	5	5	5	5	3	5	5	5	5	5	5	3	3	5	3	5	4	5
16	5	3	3	3	5	3	3	3	3	5	3	3	3	5	3	3	5	3	0	3	3	5	5	8	3	8
17	3	3	3	5	3	5	3	5	5	5	5	5	5	5	5	5	5	5	5	3	3	5	3	3	4	5
18	3	5	5	5	5	5	3	5	5	5	3	5	5	5	5	5	5	5	5	5	5	3	3	5	5	5
19	5	5	5	3	5	5	8	8	8	8	10	8	5	5	5	5	5	8	5	3	3	3	3	3	5	10
20	0	0	0	3	0	3	3	3	8	3	8	5	3	5	3	3	3	3	5	0	0	0	3	3	3	8
21	3	3	3	3	0	3	0	3	0	0	3	5	0	0	3	3	3	3	3	3	0	0	0	0	2	5
22	0	0	3	3	0	3	3	0	3	0	5	3	3	0	3	3	3	3	3	3	3	3	0	3	2	5
23	0	3	3	3	0	3	0	3	5	3	5	5	3	3	5	3	0	3	3	3	3	3	5	3	3	5
24	3	3	3	5	3	3	3	0	3	0	3	0	3	0	3	0	0	0	0	0	3	0	0	0	1	5
25	0	0	0	0	0	5	0	0	0	3	5	3	5	5	5	3	3	3	3	5	5	0	3	3	2	5
26	3	3	3	0	3	3	3	3	3	3	3	3	(CA)	5	3	3	3	3	3	3	3	3	3	3	3	5
27	3	3	5	3	3	3	3	3	3	3	3	3	5	3	3	3	0	0	3	3	3	3	3	0	3	5
28	3	0	3	3	3	3	3	3	0	5	0	0	3	0	0	3	0	0	5	3	3	3	3	3	2	5
29	0	0	3	3	0	3	0	0	0	3	3	3	3	5	0	0	0	0	0	3	0	0	3	0	1	5
30	3	0	3	0	3	0	3	0	0	3	8	3	3	5	3	3	3	0	0	0	0	3	0	0	2	8
31	3	0	0	3	0	5	0	3	3	0	(CA)	(CA)	5	3	3	3	0	0	0	0	3	0	0	0	1	5
AV	3	3	4	3	4	4	3	4	4	5	6	5	5	5	4	4	3	4	4	3	3	3	3	3	4	
PK	10	10	10	10	10	10	10	13	16	13	13	10	16	10	10	8	8	10	8	8	8	8	8	8		16

HYDROGEN SULFIDE
(UG/M3)

CB-TRACT
TRAILER AB23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	4	4	4	3	1	0	1	0	1	1	1	1	3	4	3	3	1	1	1	0	1	1	0	0	2	4
2	1	4	4	6	4	7	7	7	8	8	8	7	8	8	8	8	8	8	8	10	10	8	8	8	7	10
3	8	8	10	10	8	8	7	8	10	8	8	7	7	4	4	4	3	3	3	3	3	3	3	3	6	10
4	1	3	3	3	3	3	1	1	3	1	3	3	3	4	4	3	3	3	3	1	1	3	1	1	2	4
5	3	1	3	1	1	3	1	3	4	4	4	6	4	4	4	3	3	3	3	3	1	1	1	0	3	6
6	1	1	1	1	3	1	3	1	3	3	3	4	6	4	4	4	4	3	3	3	1	1	0	0	2	6
7	0	0	0	0	0	0	0	0	1	3	3	3	1	1	0	0	0	0	0	0	0	0	0	0	1	3
8	0	0	0	0	0	0	0	0	0	1	1	1	1	1	3	1	1	1	1	0	0	0	0	0	1	3
9	0	0	0	0	0	0	0	0	0	0	1	0	1	1	3	1	1	0	1	1	0	0	0	0	1	3
10	0	0	1	1	1	1	1	1	6	4	3	3	1	0	0	0	0	0	0	0	0	0	0	0	1	6
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	(CA)	7	3	1	0	0	0	0	0	0	1	7
13	0	0	0	0	0	0	(CA)	(CA)	(CA)	3	3	1	0	1	1	0	0	0	0	0	0	0	0	0	0	3
14	1	1	1	1	1	1	1	1	1	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	2	3
15	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	4
16	3	4	3	4	3	4	4	3	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	4	4
17	3	3	3	3	3	3	4	3	3	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	4
18	3	3	3	3	3	3	4	4	6	4	4	4	4	4	4	4	3	3	4	3	3	3	3	3	3	6
19	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	4
20	3	4	4	4	4	4	4	4	8	7	6	6	6	6	6	6	6	4	4	4	4	4	4	4	5	8
21	4	4	4	4	4	4	3	4	4	4	3	4	4	4	4	4	4	4	3	3	3	1	3	3	4	4
22	1	1	3	1	3	3	3	3	3	3	3	4	4	4	4	3	3	3	3	1	1	3	1	1	3	4
23	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	1	3	1	1	0	0	0	0	1	2	3
24	1	0	1	1	1	1	0	1	1	1	1	1	1	1	3	3	1	1	1	1	1	1	1	1	1	3
25	1	1	1	3	1	1	1	1	1	1	3	3	3	3	3	3	1	1	1	0	0	0	0	0	2	3
26	0	0	0	0	0	0	0	0	0	1	1	1	(CA)	1	1	1	1	1	0	0	0	0	0	0	0	1
27	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1
28	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AV	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	1	1	1	1	2	
PK	8	8	10	10	8	8	7	8	10	8	8	7	8	8	8	8	8	8	8	10	10	8	8	8		10

PARTICULATE DATA
UG/M3

C-B TRACT
OCT 1983
OCCIDENTAL OIL SHALE, INC.

			STATION		
DAY	AB20	AB23	AB26	AD42	AD56
1	( )	11.5	( )	( )	( )
9	( )	6.4	( )	( )	( )
13	( )	12.3	( )	( )	( )
17	( )	8.8	( )	( )	( )
21	( )	7	( )	( )	( )
25	( )	5.9	( )	( )	( )
29	( )	18.3	( )	( )	( )
AVE	( )	10	( )	( )	( )
GM	( )	9.3	( )	( )	( )
PEAK	( )	18.3	( )	( )	( )

WIND SPEED @ 10M
METERS/SEC

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	4	3	1	1	1	3	1	1	0	2	3	6	9	8	10	9	8	7	6	4	3	2	1	0	4	10
2	3	3	2	1	3	3	1	1	1	3	2	0	2	4	2	2	2	1	1	2	2	1	1	1	2	4
3	1	1	1	1	4	0	2	4	5	6	5	5	4	4	4	2	0	1	2	1	(CM)	2	2	1	3	6
4	1	1	1	1	0	1	0	1	1	1	0	1	1	1	1	1	(CM)	2	4	3	0	2	2	2	1	4
5	2	3	2	2	1	1	1	2	1	1	1	1	1	1	2	2	2	1	1	1	0	0	1	1	1	3
6	1	0	1	0	1	1	0	1	1	1	1	1	2	2	2	2	2	2	3	3	1	0	1	2	1	3
7	2	2	1	2	2	2	2	2	1	0	1	1	1	1	1	3	6	3	1	1	0	2	1	1	2	6
8	(CM)	0	0	0	0	0	0	0	0	1	1	0	1	2	3	2	0	2	2	1	2	2	1	2	1	3
9	1	1	2	3	2	3	2	2	0	4	4	5	7	6	6	6	5	5	3	2	2	2	4	6	3	7
10	6	7	6	5	4	3	3	2	1	2	4	2	2	2	2	3	3	2	1	2	1	1	2	1	3	7
11	1	0	1	0	1	0	0	1	1	2	2	2	3	3	4	3	3	3	2	0	1	0	0	1	1	4
12	1	0	1	1	1	0	1	0	1	2	2	3	3	2	2	1	1	1	0	2	0	1	1	0	1	3
13	1	2	1	2	2	2	2	2	1	2	4	6	6	6	4	5	5	3	2	2	1	5	1	3	3	6
14	2	1	1	0	2	4	4	3	4	4	5	5	6	6	5	4	5	3	2	1	1	2	1	1	3	6
15	2	2	1	2	2	2	0	1	2	3	2	2	2	2	2	3	4	2	2	1	2	2	2	1	2	4
16	0	1	2	1	2	2	2	2	2	1	1	1	1	0	(CM)	1	2	2	2	2	0	0	1	0	1	2
17	1	1	1	2	2	2	1	1	1	1	1	4	4	4	4	4	4	2	2	2	2	4	5	4	2	5
18	3	1	0	3	4	2	1	1	2	4	5	4	4	3	3	5	5	4	3	2	3	3	2	2	3	5
19	3	2	(CM)	1	1	3	0	0	1	1	1	2	2	3	4	4	4	3	2	3	2	2	2	0	2	4
20	(CM)	1	1	(CM)	0	1	0	0	1	1	2	2	3	3	3	1	2	2	1	2	1	0	0	0	1	3
21	0	1	1	0	0	0	1	0	0	1	1	2	2	2	2	3	3	2	1	1	(CM)	1	1	0	1	3
22	1	0	0	(CM)	2	0	(CM)	0	0	1	1	1	2	2	1	1	2	2	1	1	1	2	2	2	1	2
23	1	1	2	2	2	2	3	2	1	4	5	5	5	5	7	6	5	3	4	4	2	0	0	1	3	7
24	1	2	2	1	1	2	1	3	3	4	4	4	4	4	4	4	3	2	4	3	3	2	2	2	3	4
25	1	1	1	0	1	0	0	0	1	1	1	1	2	2	2	2	2	1	2	2	0	1	0	0	1	2
26	1	0	(CM)	1	2	1	1	0	(CM)	1	2	2	2	2	2	2	2	1	2	1	(CM)	(CM)	(CM)	0	1	2
27	0	0	1	(CM)	1	(CM)	0	1	1	1	1	2	2	3	4	4	2	1	1	0	1	0	1	1	1	4
28	0	0	1	0	0	1	1	0	1	1	1	1	2	2	3	3	2	2	0	2	2	1	0	1	1	3
29	0	1	2	1	1	1	1	0	(CM)	1	2	2	2	2	2	2	2	0	1	0	0	1	1	1	1	2
30	(CM)	1	1	0	(CM)	1	1	2	1	1	2	3	2	2	5	4	4	4	3	3	3	4	2	3	2	5
31	2	2	2	4	4	1	1	2	1	2	5	4	4	5	4	1	2	1	2	1	0	0	0	0	2	5
AV	2	1	1	2	2	2	1	1	1	2	2	3	3	3	3	3	3	2	2	2	1	2	1	1	2	
PK	6	7	6	5	4	4	4	4	5	6	5	6	9	8	10	9	8	7	6	4	3	5	5	6		10

WIND SPEED @ 30M
METERS/SEC

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	5	4	3	2	2	5	2	3	0	3	4	8	12	12	13	13	11	9	9	5	4	4	2	1	6	13
2	4	5	4	3	4	4	1	1	2	4	2	0	3	5	3	3	3	2	2	2	2	0	1	1	3	5
3	3	1	2	2	6	1	3	7	8	8	7	7	7	6	5	3	1	2	3	2	1	2	3	2	4	8
4	2	1	1	2	0	0	0	1	1	1	0	1	1	1	1	1	0	3	6	6	1	1	2	3	2	6
5	3	3	3	3	2	2	2	3	2	1	1	1	2	2	3	3	3	2	1	1	(CM)	1	1	1	2	3
6	1	1	1	0	1	1	1	1	1	1	1	1	2	3	3	2	2	3	5	5	0	1	1	2	2	5
7	3	2	0	2	3	3	3	2	2	0	1	1	1	1	2	4	8	4	1	0	0	2	1	0	2	8
8	0	0	0	1	0	0	0	1	0	1	1	0	1	2	4	3	1	2	3	1	2	4	2	2	2	4
9	3	1	2	4	4	4	3	3	1	5	6	7	9	8	8	8	7	8	6	4	3	2	5	8	5	9
10	9	10	9	8	6	4	4	3	2	4	6	3	3	2	2	3	4	3	2	2	1	2	4	2	4	10
11	2	9	1	0	(CM)	1	0	1	1	2	3	3	4	4	4	4	4	4	3	1	1	0	1	0	2	4
12	1	0	1	1	2	1	1	0	1	2	3	4	4	3	3	1	1	2	0	3	0	0	0	0	2	4
13	2	2	1	3	3	3	3	3	1	3	6	8	8	8	6	7	7	4	3	3	1	8	2	4	4	8
14	3	2	1	1	3	5	7	4	7	6	8	7	8	9	7	6	7	4	3	2	1	3	2	1	4	9
15	3	3	2	4	4	4	2	4	3	4	3	3	2	2	2	4	5	4	4	1	3	4	3	1	3	5
16	0	1	1	1	2	3	2	3	2	2	1	2	1	1	(CM)	1	2	4	3	3	1	(CM)	1	1	2	4
17	1	2	1	2	3	2	0	1	2	1	1	4	6	5	5	5	5	4	4	4	3	7	8	6	4	8
18	4	2	1	4	5	3	1	1	2	5	7	6	6	4	4	8	7	6	6	4	5	4	3	3	4	8
19	4	4	1	1	1	3	(CM)	1	1	2	1	3	3	4	4	5	5	4	4	3	3	2	2	(CM)	3	5
20	0	0	0	0	0	0	0	0	1	2	3	3	4	4	4	2	2	3	1	2	1	(CM)	0	0	2	4
21	(CM)	0	1	1	0	1	0	1	0	1	2	2	3	3	3	3	3	2	0	1	0	0	1	0	1	3
22	0	0	0	0	1	1	0	1	0	1	1	1	3	2	2	2	3	3	1	0	(CM)	1	3	2	1	3
23	2	1	3	2	3	4	5	4	1	6	8	7	7	7	9	8	7	5	7	8	4	1	1	2	5	9
24	2	3	2	1	2	3	2	4	4	5	5	5	5	6	4	4	4	3	6	4	4	3	3	2	4	6
25	2	0	0	0	1	1	0	0	1	1	1	1	2	3	2	2	3	2	2	2	1	1	0	0	1	3
26	1	1	0	0	1	1	1	1	(CM)	1	2	3	3	3	3	3	3	2	2	2	0	0	0	0	2	3
27	0	1	1	0	1	0	0	1	1	1	1	2	3	4	5	4	3	2	0	(CM)	0	(CM)	1	1	2	5
28	0	(CM)	1	1	0	2	1	0	1	1	1	1	3	3	4	4	3	3	1	2	2	1	0	0	2	4
29	0	0	1	1	0	1	1	1	0	1	2	3	2	3	2	3	3	1	1	1	1	1	1	1	1	3
30	0	1	2	1	1	1	0	2	1	1	2	4	3	3	7	6	5	5	4	5	5	5	3	4	3	7
31	4	3	4	5	7	2	1	2	2	2	7	6	6	7	6	2	3	1	3	2	1	0	(CM)	0	3	7
AV	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	4	3	3	3	2	2	2	2	3	
PK	9	10	9	8	7	5	7	7	8	8	8	8	12	12	13	13	11	9	9	8	5	8	8	8		13

WIND SPEED @ 60M
METERS/SEC

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	6	5	4	3	2	5	3	3	1	4	5	9	13	12	14	13	12	10	10	6	5	4	3	2	7	14
2	5	7	5	4	5	5	1	1	3	4	3	1	3	5	4	3	4	3	3	2	3	1	3	3	3	7
3	5	2	2	3	8	3	4	8	9	9	8	8	8	7	6	3	1	2	3	2	2	2	3	4	5	9
4	4	1	1	2	1	0	0	2	1	1	1	1	1	1	1	2	0	4	7	8	3	2	2	2	2	8
5	2	2	3	3	1	2	1	2	2	1	1	1	2	2	4	4	4	2	2	1	0	0	1	1	2	4
6	1	1	1	1	1	0	1	0	1	1	2	1	2	3	3	3	3	4	7	7	2	2	2	2	2	7
7	2	2	1	1	2	1	2	2	1	0	1	1	1	1	2	4	10	4	1	0	1	2	1	1	2	10
8	1	0	0	1	1	1	1	1	0	1	2	0	1	3	4	4	1	3	4	2	3	6	4	2	2	6
9	2	1	3	5	4	5	4	4	1	5	6	8	10	9	8	8	8	8	7	5	5	3	7	10	6	10
10	11	11	11	9	7	5	5	3	2	4	6	3	3	2	2	4	4	4	2	3	2	2	4	3	5	11
11	2	1	0	1	0	1	2	2	2	3	3	3	4	4	5	4	4	4	4	2	1	1	2	1	2	5
12	0	1	1	2	2	2	1	0	1	3	3	4	4	3	4	2	2	2	1	3	2	0	1	2	2	4
13	2	2	1	2	2	3	4	3	2	4	6	8	9	8	6	7	8	5	3	4	2	9	3	4	4	9
14	4	2	0	1	4	7	8	5	8	7	8	8	10	10	8	7	8	5	4	2	1	3	3	2	5	10
15	4	4	3	5	5	4	4	4	4	4	3	4	3	2	3	4	5	4	4	2	4	4	3	2	4	5
16	1	2	1	2	2	3	2	2	2	2	1	2	2	1	(CM)	2	3	4	3	3	1	0	2	2	2	4
17	(CM)	2	1	2	2	1	2	1	2	1	1	5	7	6	5	5	6	5	4	5	3	8	9	7	4	9
18	5	3	2	6	6	4	1	1	3	6	7	7	7	4	5	8	8	7	7	4	7	5	4	4	5	8
19	5	4	2	1	1	2	1	1	1	2	2	3	3	4	5.	5	5	5	4	4	4	3	2	1	3	5
20	0	0	0	0	0	0	0	1	1	2	3	3	4	4	4	2	3	3	2	2	1	1	0	(CM)	2	4
21	1	0	1	1	0	0	1	0	0	1	2	2	4	4	4	4	4	4	1	0	1	0	1	1	2	4
22	1	1	(CM)	0	0	0	0	1	0	1	1	1	3	3	2	2	3	3	2	0	1	1	2	1	1	3
23	1	1	3	2	2	3	4	3	1	7	8	7	8	7	10	8	8	7	8	9	6	3	1	2	5	10
24	3	3	2	2	1	4	4	5	4	6	6	6	5	6	5	5	4	4	6	6	4	4	4	3	4	6
25	1	1	1	0	1	1	0	1	0	1	1	2	3	3	3	3	3	2	2	2	1	1	0	0	1	3
26	1	0	1	1	1	1	0	0	0	1	2	3	3	3	3	3	3	3	2	2	1	0	0	1	2	3
27	0	1	1	1	1	0	0	1	1	0	2	3	4	4	5	5	4	3	1	0	0	1	1	2	2	5
28	1	0	1	1	1	2	1	1	1	1	1	1	3	4	4	4	3	3	2	2	2	1	0	0	2	4
29	1	1	1	0	1	1	0	1	0	1	2	3	3	3	3	3	4	1	1	1	2	2	2	2	2	4
30	2	2	3	1	2	2	2	1	2	0	3	4	3	3	7	7	6	6	5	5	6	6	4	6	4	7
31	4	4	5	6	7	3	0	2	2	2	8	6	6	8	7	2	4	2	4	3	2	1	0	1	4	8
AV	3	2	2	2	3	2	2	2	2	3	3	4	4	4	5	5	5	4	4	3	2	3	2	2	3	
PK	11	11	11	9	8	7	8	8	9	9	8	9	13	12	14	13	12	10	10	9	7	9	9	10		14

WIND DIRECTION @ 10M
DEGREES

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	179	195	171	97	108	186	164	106	159	163	183	179	200	191	192	190	188	190	194	209	207	248	295	326	184
2	207	207	202	215	193	195	50	65	278	324	287	348	312	286	272	155	141	143	137	102	125	67	127	93	172
3	208	94	106	103	190	153	187	204	208	224	228	248	240	219	247	237	309	184	207	196	(CM)	211	227	235	207
4	283	219	180	183	112	225	117	114	68	47	279	345	9	18	62	105	(CM)	204	201	205	79	86	90	96	115
5	127	148	152	153	151	158	116	99	68	24	289	305	298	258	242	237	233	291	246	249	216	253	145	203	206
6	223	109	208	146	196	232	85	122	61	14	351	6	226	245	269	270	283	230	202	201	39	341	99	111	205
7	124	144	104	105	117	124	109	83	65	297	0	298	161	335	189	161	191	216	142	173	210	211	196	205	156
8	(CM)	225	232	199	270	214	265	53	42	8	325	239	156	223	307	325	299	281	236	138	181	169	102	78	239
9	98	122	117	166	148	153	135	146	225	217	222	216	220	221	222	221	222	220	202	156	130	101	169	179	178
10	179	180	180	178	193	278	269	257	7	33	16	34	111	107	33	344	325	314	349	349	302	59	157	156	352
11	129	248	204	135	228	175	219	174	59	6	324	343	328	343	347	354	358	19	66	161	197	191	315	229	281
12	212	209	170	155	174	201	209	66	320	303	312	327	339	340	346	4	339	320	180	181	180	208	166	145	234
13	135	144	128	113	95	109	107	97	70	208	207	212	222	215	194	211	207	187	143	155	105	202	246	207	165
14	120	114	53	35	156	208	216	215	230	261	221	256	212	214	201	201	218	269	240	157	90	147	193	187	197
15	219	220	204	202	196	207	203	204	211	226	281	301	306	322	315	275	266	265	213	161	144	157	200	186	225
16	168	120	103	115	104	110	95	95	69	71	297	274	317	146	(CM)	119	196	229	224	214	122	214	161	159	144
17	109	141	163	138	132	106	65	85	63	38	270	212	211	210	227	225	226	220	209	205	221	192	183	188	178
18	196	207	281	241	191	179	73	124	147	200	222	215	231	240	227	240	229	213	207	235	259	307	330	0	223
19	20	43	(CM)	290	238	221	71	115	325	315	331	306	310	323	339	335	336	321	272	239	232	225	218	146	301
20	(CM)	217	211	(CM)	131	223	131	101	73	329	300	303	315	314	305	335	329	321	243	224	202	173	161	247	257
21	185	210	256	200	96	218	212	246	65	19	332	325	328	328	335	333	343	333	223	212	(CM)	164	213	58	273
22	231	310	183	(CM)	226	176	(CM)	90	76	11	17	357	331	330	11	332	320	218	144	80	101	113	109	115	53
23	121	122	151	111	115	106	119	91	98	216	217	216	205	217	226	233	219	226	205	206	203	126	323	265	179
24	246	249	235	239	220	244	292	314	309	297	306	318	325	336	345	351	340	343	324	299	252	234	240	224	287
25	212	197	227	196	221	353	139	90	23	310	4	338	323	339	303	321	339	289	227	233	219	195	98	141	269
26	203	90	(CM)	229	217	210	220	16	(CM)	327	303	303	307	329	311	298	294	265	226	230	(CM)	(CM)	(CM)	191	267
27	169	166	143	(CM)	225	(CM)	120	133	73	13	13	320	315	319	325	339	352	60	203	175	225	99	210	211	177
28	217	203	220	324	84	94	214	248	54	352	5	327	322	327	311	331	339	7	45	231	222	217	211	216	292
29	145	259	219	210	225	221	246	180	(CM)	317	323	334	319	342	319	333	345	338	172	143	207	204	152	215	249
30	(CM)	213	204	145	(CM)	183	85	106	62	51	215	218	249	270	217	222	214	218	183	174	171	168	148	164	187
31	166	176	188	172	175	169	78	145	177	13	198	211	212	219	211	295	355	94	150	176	125	343	233	203	181
PV	177	179	182	169	172	185	144	118	66	337	295	243	279	284	282	284	286	259	203	193	183	183	181	180	215

WIND DIRECTION @ 30M
DEGREES

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	171	185	170	110	113	183	163	97	149	162	178	176	194	187	187	185	183	185	188	204	203	243	281	306	180
2	207	205	197	220	191	193	62	88	266	321	281	308	306	281	270	152	139	160	162	109	155	86	164	177	192
3	209	121	107	127	186	176	191	199	203	219	223	244	240	220	242	235	305	180	198	188	215	226	245	249	208
4	286	254	172	197	51	248	84	124	79	42	274	339	0	14	62	99	117	198	197	196	184	110	118	104	125
5	116	143	145	146	149	169	124	104	71	27	292	301	291	249	239	233	228	299	281	317	(CM)	229	111	174	197
6	238	94	199	194	145	233	49	126	68	14	349	0	217	239	266	268	281	224	199	199	341	274	171	115	221
7	115	150	148	119	112	126	115	107	68	247	358	290	157	333	184	158	185	199	122	125	232	214	193	194	156
8	347	232	333	176	279	14	21	67	54	9	325	249	148	220	305	321	307	279	244	147	179	175	130	89	292
9	97	129	125	164	142	144	134	145	211	212	219	211	215	217	218	216	218	215	203	172	159	141	167	175	178
10	173	173	174	173	189	274	267	253	5	30	13	29	107	107	30	341	320	314	350	1	331	48	140	145	13
11	120	102	158	90	(CM)	141	120	146	58	1	320	335	322	338	343	350	356	15	56	95	141	341	3	283	36
12	215	37	139	114	124	121	201	27	313	298	309	325	333	334	340	0	336	317	69	145	161	156	161	219	1
13	115	137	116	114	107	118	122	108	86	201	202	207	217	210	188	205	201	182	136	159	135	201	240	203	163
14	127	123	62	4	157	206	213	211	225	257	219	252	208	209	195	197	215	262	235	169	97	144	201	214	199
15	222	219	204	204	197	199	196	204	210	223	276	295	299	317	305	270	262	264	221	184	121	147	172	198	224
16	188	176	118	163	115	117	109	102	73	68	292	274	311	145	(CM)	112	194	231	237	222	157	(CM)	178	146	158
17	86	121	150	128	120	121	215	111	72	44	266	209	205	205	223	222	221	217	204	206	220	188	178	182	179
18	192	203	245	227	187	172	62	104	148	197	216	211	227	238	222	236	226	211	204	226	261	308	335	358	218
19	18	36	21	340	309	232	(CM)	100	321	313	323	302	305	319	334	332	335	321	289	263	255	243	236	(CM)	313
20	42	127	238	259	101	211	220	63	76	326	297	299	311	310	302	330	326	327	284	243	229	(CM)	42	293	301
21	(CM)	151	310	234	61	105	180	258	80	14	331	322	323	323	331	328	341	339	270	227	27	338	210	352	325
22	291	289	141	37	243	238	209	73	77	19	15	352	326	329	8	332	314	220	176	42	(CM)	121	114	114	2
23	108	98	143	126	128	107	108	94	102	210	212	213	200	214	222	228	214	223	208	204	199	182	3	274	177
24	268	275	266	270	233	254	292	315	305	293	303	314	320	332	341	346	336	343	323	305	266	252	259	241	294
25	229	172	257	83	167	322	151	148	28	310	354	334	320	333	301	317	336	314	247	262	235	217	90	65	295
26	158	203	344	215	191	202	242	7	(CM)	323	299	300	303	324	307	298	293	294	253	256	170	68	11	190	274
27	144	132	135	122	231	109	94	140	86	11	4	316	310	314	321	335	351	41	153	(CM)	232	(CM)	217	205	96
28	207	(CM)	213	297	300	72	204	260	48	346	356	325	320	320	307	325	336	4	18	254	230	236	157	275	300
29	85	307	191	228	291	215	273	233	321	308	317	330	317	335	315	330	345	0	131	110	158	177	178	210	280
30	225	197	198	164	250	185	151	108	88	53	208	215	245	266	213	219	211	215	177	171	160	162	144	167	188
31	172	175	173	159	163	169	79	139	180	12	193	206	209	215	209	287	357	63	126	151	177	299	(CM)	37	170
PV	169	161	170	164	166	174	153	121	75	333	291	287	274	279	278	280	282	264	207	194	193	196	173	195	223

WIND DIRECTION @ 60M
DEGREES

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	174	176	170	131	143	185	170	102	147	165	178	177	192	185	186	183	181	183	187	202	203	240	268	283	182
2	210	207	196	222	194	198	88	117	253	321	274	282	303	283	272	158	146	182	189	140	184	204	196	205	208
3	209	176	129	160	187	196	195	197	201	217	222	243	242	222	243	239	298	180	202	192	230	246	262	255	214
4	284	288	215	213	127	286	246	161	118	40	270	335	0	10	62	98	130	198	202	196	196	196	172	118	192
5	118	160	161	156	145	184	165	122	94	30	289	298	288	248	241	234	227	310	311	336	351	319	190	161	217
6	220	3	93	210	119	135	284	148	82	17	350	352	215	243	264	268	282	227	208	207	199	231	204	166	219
7	135	171	185	164	110	138	134	145	86	240	356	294	168	338	191	160	184	194	148	156	274	225	193	167	172
8	313	241	309	121	132	312	312	313	32	15	329	256	151	221	305	323	319	285	255	197	188	182	162	108	273
9	108	127	145	171	151	149	141	153	214	210	218	210	213	218	217	215	217	214	205	186	180	173	172	176	184
10	173	172	176	177	193	283	276	261	6	31	15	31	109	112	34	341	322	318	351	20	354	50	135	136	25
11	118	81	90	94	135	130	119	133	60	359	323	333	323	337	343	349	358	18	53	80	101	17	0	339	41
12	291	25	62	93	104	112	153	112	282	298	313	327	332	335	340	1	339	319	49	133	172	102	185	246	10
13	123	158	138	127	145	148	149	136	137	199	201	205	215	209	188	202	199	183	147	169	164	200	238	205	174
14	148	156	114	336	166	207	215	212	225	256	221	251	208	211	197	199	215	259	235	202	139	155	222	232	206
15	231	234	212	218	209	207	205	213	212	222	271	292	298	318	305	272	263	267	234	215	115	134	161	193	231
16	184	188	169	186	145	136	134	111	103	78	289	275	314	151	(CM)	116	197	234	248	235	200	132	184	145	173
17	(CM)	110	153	166	130	180	201	176	106	53	259	210	205	205	223	220	221	217	213	215	220	188	179	184	190
18	192	203	235	228	187	173	57	120	159	195	214	210	226	239	221	236	226	211	207	230	270	314	344	0	217
19	21	40	30	351	319	249	240	129	331	319	323	303	308	322	335	334	336	328	309	282	277	265	259	225	313
20	204	102	109	102	106	101	100	90	75	331	299	301	314	311	304	331	328	335	320	271	260	225	135	(CM)	341
21	353	124	318	254	233	80	117	34	15	17	338	325	326	325	332	330	343	343	14	90	90	90	113	4	9
22	68	138	(CM)	6	50	0	189	51	71	39	11	351	327	332	6	332	315	228	205	202	204	190	147	150	26
23	73	93	153	168	148	117	120	115	137	208	210	211	198	213	222	226	213	221	214	215	210	200	332	279	187
24	275	304	297	292	262	267	300	324	310	297	305	316	324	333	343	349	341	347	328	317	284	271	275	265	305
25	272	157	0	6	135	300	225	180	90	328	348	334	320	332	306	319	338	339	272	284	252	240	222	10	305
26	95	100	99	118	125	122	135	124	117	314	297	300	308	324	311	302	297	320	286	269	238	225	151	183	243
27	146	129	145	121	210	246	236	159	118	338	353	320	313	316	321	335	355	30	77	346	315	202	195	208	286
28	212	180	197	114	304	44	149	261	5	351	353	323	323	322	311	328	339	7	12	294	246	283	221	236	305
29	332	69	112	112	114	40	111	233	9	303	320	333	323	335	317	332	349	5	95	109	148	159	181	195	31
30	233	197	196	184	215	194	194	152	140	168	207	216	243	265	211	218	211	214	178	175	160	165	158	168	194
31	172	173	167	160	162	174	35	159	186	17	192	205	207	214	210	288	358	57	115	141	191	250	318	345	183
PV	184	152	154	158	155	172	169	147	105	328	290	286	275	280	279	281	283	270	224	206	209	207	197	202	231

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
10 METER LEVEL

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	179	195	171	97	108	186	164	106	159	163	183	179	200	191	192	190	188	190	194	209	207	248	295	326	190	3.6
2	207	207	202	215	193	195	50	66	278	324	287	348	312	286	272	155	141	143	137	102	125	67	127	93	201	0.6
3	208	94	106	103	190	153	187	204	208	224	228	248	240	219	247	237	309	184	207	196	***	211	227	235	217	2.2
4	283	219	180	183	112	225	117	114	68	47	279	345	9	18	62	105	***	204	201	205	79	86	90	96	143	0.4
5	127	148	152	153	151	158	116	99	68	24	289	305	298	258	242	237	233	291	246	249	216	253	145	203	189	0.6
6	223	109	208	146	196	232	85	122	61	14	351	6	226	245	269	270	283	230	202	201	39	341	99	111	227	0.5
7	124	144	104	105	117	124	109	83	65	297	0	298	161	335	189	161	191	216	142	173	210	211	196	205	156	1.0
8	***	225	232	199	270	214	265	53	42	8	325	239	156	223	307	325	299	281	236	138	181	169	102	78	247	0.3
9	98	122	117	166	148	153	135	146	225	217	222	216	220	221	222	221	222	220	202	156	130	101	169	179	196	2.8
10	179	180	180	178	193	278	269	257	7	33	16	34	111	107	33	344	325	314	349	349	302	59	157	156	194	0.5
11	129	248	204	135	228	175	219	174	59	6	324	343	328	343	347	354	358	19	66	161	197	191	315	229	349	0.7
12	212	209	170	155	174	201	209	66	320	303	312	327	339	340	346	4	339	320	180	181	180	208	166	145	299	0.4
13	135	144	128	113	95	109	107	97	70	208	207	212	222	215	194	211	207	187	143	155	105	202	246	207	188	2.2
14	120	114	53	35	156	208	216	215	230	261	221	256	212	214	201	201	218	269	240	157	90	147	193	187	214	2.4
15	219	220	204	202	196	207	203	204	211	226	281	301	306	322	315	275	266	265	213	161	144	157	200	186	234	1.3
16	168	120	103	115	104	110	95	95	69	71	297	274	317	146	***	119	196	229	224	214	122	214	161	159	142	0.6
17	109	141	163	138	132	106	66	85	63	38	270	212	211	210	227	225	226	220	209	205	221	192	183	188	194	1.8
18	196	207	281	231	191	179	73	124	147	200	222	215	231	240	227	240	229	213	207	235	259	307	330	0	225	2.2
19	20	43	***	290	238	221	71	115	325	315	331	306	310	323	339	335	336	321	272	239	232	225	218	146	307	1.1
20	***	217	211	***	131	223	131	101	73	329	300	303	315	314	305	335	329	321	243	224	202	173	161	247	294	0.8
21	185	210	256	200	96	218	212	246	65	19	332	325	328	328	335	333	343	333	223	212	***	164	213	58	314	0.6
22	231	310	189	***	226	176	***	90	76	11	17	357	331	330	11	332	320	218	144	80	101	113	109	115	36	0.2
23	121	122	151	111	115	106	119	91	98	216	217	216	205	217	226	233	219	226	205	206	203	126	323	265	201	2.2
24	246	249	235	239	220	244	292	314	309	297	306	318	325	336	345	351	340	343	324	299	252	234	240	224	301	2.0
25	212	197	227	196	221	353	139	90	23	310	4	338	323	339	303	321	339	289	227	233	219	195	98	141	288	0.5
26	203	90	***	229	217	210	220	16	***	327	303	303	307	329	311	298	294	265	226	230	***	***	***	191	276	1.0
27	169	166	143	***	225	***	120	133	73	13	13	320	315	319	325	339	352	60	203	175	225	99	210	211	324	0.5
28	217	203	220	324	84	84	214	248	54	352	5	327	322	327	311	331	339	7	45	231	222	217	211	216	301	0.6
29	145	250	219	210	225	221	246	180	***	317	323	334	319	342	319	333	345	338	172	143	207	204	152	215	287	0.6
30	***	213	204	185	***	183	85	106	62	51	215	218	249	270	217	222	214	218	183	174	171	168	148	164	196	1.7
31	166	176	188	172	175	169	78	145	177	13	198	211	212	219	211	295	355	94	150	176	125	343	233	203	193	1.5
VD	175	177	177	165	172	183	157	132	94	279	259	258	250	256	256	258	252	243	208	201	195	190	176	178	217	
VV	1.1	1.0	1.0	1.1	1.3	1.0	0.5	0.6	0.2	0.7	1.3	1.5	1.7	1.6	1.7	1.5	1.4	1.2	1.5	1.3	0.8	0.9	0.9	0.8		0.8

TOTAL NUMBER OF OBSERVATIONS = 724

NOTE: **** = MISSING DATA

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
30 METER LEVEL

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	171	185	170	110	113	183	163	97	149	162	178	176	194	187	187	185	183	185	188	204	203	243	281	306	185	5.2
2	207	205	197	220	191	193	62	88	266	321	281	308	306	281	270	152	139	160	162	109	155	86	164	177	207	1.4
3	209	121	107	127	186	176	191	199	203	219	223	244	240	220	242	235	305	180	198	188	215	226	245	249	214	3.3
4	286	254	172	197	51	248	84	124	79	42	274	339	0	14	62	99	117	198	197	196	184	110	118	104	165	0.6
5	116	143	145	146	149	169	124	104	71	27	292	301	291	249	239	233	228	299	281	317	***	229	111	174	182	0.7
6	238	94	199	194	145	233	49	126	68	14	349	0	217	239	266	268	281	224	199	199	341	274	171	115	220	0.8
7	115	150	148	119	112	126	115	107	68	247	358	290	157	333	184	158	185	199	122	125	232	214	193	194	154	1.3
8	347	232	333	176	279	14	21	67	54	9	325	249	148	220	305	321	307	279	244	147	179	175	130	89	242	0.3
9	97	129	125	164	142	144	134	145	211	212	219	211	215	217	218	216	218	215	203	172	159	141	167	175	193	4.2
10	173	173	174	173	189	274	267	253	5	30	13	29	107	107	30	341	320	314	350	1	331	48	140	145	177	0.8
11	120	102	158	90	***	141	120	146	58	1	320	335	322	338	343	350	356	15	56	95	141	341	3	283	1	1.2
12	215	37	139	114	124	121	201	27	313	298	309	325	333	334	340	0	336	317	69	145	161	156	161	219	330	0.6
13	115	137	116	114	107	118	122	108	86	201	202	207	217	210	188	205	201	182	136	159	135	201	240	203	184	3.2
14	127	123	62	4	157	206	213	211	225	257	219	252	208	209	195	197	215	262	235	169	97	144	201	214	212	3.7
15	222	219	204	204	197	199	196	204	210	223	276	295	299	317	305	270	262	264	221	184	121	147	172	198	226	2.1
16	188	176	118	163	115	117	109	102	73	68	292	274	311	145	***	112	194	231	237	222	157	***	178	146	161	0.8
17	86	121	150	128	120	121	215	111	72	44	266	209	205	205	223	222	221	217	204	206	220	188	178	182	193	2.7
18	192	203	245	227	187	172	62	104	148	197	216	211	227	238	222	236	226	211	204	226	261	308	335	358	221	3.3
19	18	36	21	340	309	232	***	100	321	313	323	302	305	319	334	332	335	321	289	263	255	243	236	***	316	2.0
20	42	127	238	259	101	211	220	63	76	326	297	299	311	310	302	330	326	327	284	243	229	***	42	293	307	1.1
21	***	151	310	234	61	105	180	258	80	14	331	322	323	323	331	328	341	339	270	227	27	338	210	352	327	1.0
22	291	289	141	37	243	238	209	73	77	19	15	352	326	329	8	332	314	220	176	42	***	121	114	114	345	0.3
23	108	98	143	126	128	107	108	94	102	210	212	213	200	214	222	228	214	223	208	204	199	182	3	274	198	3.4
24	268	275	266	270	233	254	292	315	305	293	303	314	320	332	341	346	336	343	323	305	266	252	259	241	303	3.2
25	229	172	257	83	167	322	151	148	28	310	354	334	320	333	301	317	336	314	247	262	235	217	90	65	302	0.7
26	158	203	344	215	191	202	242	7	***	323	299	300	303	324	307	298	293	294	253	256	170	68	11	190	289	1.1
27	144	132	135	122	231	109	94	140	86	11	4	316	310	314	321	335	351	41	153	***	232	***	217	205	332	0.7
28	207	***	213	297	300	72	204	260	48	346	356	325	320	320	307	325	336	4	18	254	230	236	157	275	317	1.0
29	85	307	191	228	291	215	273	233	321	308	317	330	317	335	315	330	345	0	131	110	158	177	178	210	310	0.7
30	225	197	198	164	250	185	151	108	88	53	208	215	245	266	213	219	211	215	177	171	160	162	144	167	192	2.5
31	172	175	173	159	163	169	79	139	180	12	193	206	209	215	209	287	357	63	126	151	177	299	***	37	183	2.3
VD	169	171	167	167	164	175	161	138	150	267	251	253	245	251	250	251	245	241	209	202	200	197	179	179	214	
VV	1.2	1.2	1.2	1.3	1.7	1.4	0.8	0.9	0.3	0.9	1.7	2.0	2.4	2.3	2.3	2.0	1.9	1.7	1.9	1.8	1.2	1.4	1.1	1.1		1.2

TOTAL NUMBER OF OBSERVATIONS = 730

NOTE: **** = MISSING DATA

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
60 METER LEVEL

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	174	176	170	131	143	185	170	102	147	165	178	177	192	185	186	183	181	183	187	202	203	240	268	283	185	6.0
2	210	207	196	222	194	198	88	117	253	321	274	282	303	283	272	158	146	182	189	140	184	204	196	205	212	2.3
3	209	176	129	160	187	196	195	197	201	217	222	243	242	222	243	239	298	180	202	192	230	246	262	255	216	4.1
4	284	288	215	213	127	286	246	161	118	40	270	335	0	10	62	98	130	198	202	196	196	196	172	118	197	1.0
5	118	160	161	156	145	184	165	122	94	30	289	298	288	248	241	234	227	310	311	336	351	319	190	161	211	0.8
6	220	3	93	210	119	135	284	148	82	17	350	352	215	243	264	268	282	227	208	207	199	231	204	166	227	1.3
7	135	171	185	164	110	138	134	145	86	240	356	294	168	338	191	160	184	194	148	156	274	225	193	167	172	1.4
8	313	241	309	121	132	312	312	313	32	15	329	256	151	221	305	323	319	285	255	197	188	182	162	108	245	0.7
9	108	127	145	171	151	149	141	153	214	210	218	210	213	218	217	215	217	214	205	186	180	173	172	176	194	5.1
10	173	172	176	177	193	283	276	261	6	31	15	31	109	112	34	341	322	318	351	20	354	50	135	136	175	0.9
11	118	81	90	94	135	130	119	133	60	359	323	333	323	337	343	349	358	18	53	80	101	17	0	339	12	1.5
12	291	25	62	93	104	112	153	112	282	298	313	327	332	335	340	1	339	319	49	133	172	102	185	246	343	0.7
13	123	158	138	127	145	148	149	136	137	199	201	205	215	209	188	202	199	183	147	169	164	200	238	205	189	4.0
14	148	156	114	336	166	207	215	212	225	256	221	251	208	211	197	199	215	259	235	202	139	155	222	232	214	4.7
15	231	234	212	218	209	207	205	213	212	222	271	292	298	318	305	272	263	267	234	215	115	134	161	193	230	2.6
16	184	188	169	186	145	136	134	111	103	78	289	275	314	151	***	116	197	234	248	235	200	132	184	145	183	1.0
17	***	110	153	166	130	180	201	176	106	53	259	210	205	205	223	220	221	217	213	215	220	188	179	184	199	3.5
18	192	203	235	228	187	173	57	120	159	195	214	210	226	239	221	236	226	211	207	230	270	314	344	0	222	3.8
19	21	40	30	351	319	249	240	129	331	319	323	303	308	322	335	334	336	328	309	282	277	265	259	225	322	2.2
20	204	102	109	102	106	101	100	90	75	331	299	301	314	311	304	331	328	335	320	271	260	225	135	***	315	1.1
21	353	124	318	254	233	80	117	34	15	17	338	325	326	325	332	330	343	343	14	90	90	90	113	4	342	1.2
22	68	138	***	6	50	0	189	51	71	39	11	351	327	332	6	332	315	228	205	202	204	190	147	150	327	0.4
23	73	93	153	168	148	117	120	115	137	208	210	211	198	213	222	226	213	221	214	215	210	200	332	279	205	4.1
24	275	304	297	292	262	267	300	324	310	297	305	316	324	333	343	349	341	347	328	317	284	271	275	265	312	3.9
25	272	157	0	6	135	300	225	180	90	328	348	334	320	332	306	319	338	339	272	284	252	240	222	10	311	1.0
26	95	100	99	118	125	122	135	124	117	314	297	300	308	324	311	302	297	320	286	269	238	225	151	183	301	0.8
27	146	129	145	121	210	246	236	159	118	338	353	320	313	316	321	335	355	30	77	346	315	202	195	208	330	0.8
28	212	180	197	114	304	44	149	261	5	351	353	323	323	322	311	328	339	7	12	294	246	283	221	236	325	1.1
29	332	69	112	112	114	40	111	233	9	303	320	333	323	335	317	332	349	5	95	109	148	159	181	195	341	0.6
30	233	197	196	184	215	194	194	152	140	168	207	216	243	265	211	218	211	214	178	175	160	165	158	168	195	3.3
31	172	173	167	160	162	174	35	159	186	17	192	205	207	214	210	288	358	57	115	141	191	250	318	345	183	2.5
VD	185	173	170	176	170	185	184	169	177	257	251	252	245	252	251	252	246	243	217	209	208	203	195	195	218	
VV	1.4	1.3	1.5	1.6	2.0	1.5	1.1	1.1	0.7	1.0	1.8	2.2	2.5	2.5	2.6	2.1	2.1	1.9	2.0	2.0	1.6	1.7	1.4	1.4		1.4

TOTAL NUMBER OF OBSERVATIONS = 740

NOTE: **** = MISSING DATA

SIGMA HORIZ. WIND DIR. @ 10M
DEGREES

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	5	5	9	6	7	7	7	9	19	20	16	17	12	11	11	11	10	10	9	12	13	10	12	12	11	20
2	9	8	15	16	7	10	16	12	22	13	26	20	10	8	11	10	8	8	16	9	13	20	15	19	13	26
3	20	13	14	12	16	22	40	11	10	10	10	12	10	8	12	11	11	7	6	11	(CM)	2	2	4	12	40
4	9	4	7	13	13	6	32	8	9	23	34	34	37	32	32	27	(CM)	7	6	7	21	10	7	4	17	37
5	5	4	3	5	8	12	6	6	10	28	41	29	38	31	24	22	12	19	11	10	1	14	8	17	15	41
6	24	5	9	7	8	6	8	8	13	22	29	38	27	29	19	19	24	7	5	9	14	22	25	7	16	38
7	6	5	10	5	4	4	4	4	12	40	39	22	28	16	15	9	7	6	12	6	15	2	8	18	12	40
8	(CM)	11	12	14	14	1	8	5	21	10	19	25	29	22	14	10	13	6	5	15	8	18	17	14	14	29
9	7	5	7	4	17	5	9	12	20	13	14	14	12	12	11	10	11	7	6	6	8	12	10	7	10	20
10	6	6	6	5	7	9	7	8	13	14	10	12	14	22	22	13	10	5	12	8	11	13	6	9	10	22
11	13	16	6	18	8	5	9	11	20	15	27	29	20	16	14	13	9	6	6	8	8	15	29	13	14	29
12	8	14	5	7	4	6	5	12	12	15	23	17	23	23	17	29	15	5	15	4	10	14	9	19	13	29
13	5	3	4	4	4	4	5	5	17	19	12	11	11	11	12	14	10	9	8	9	9	10	15	12	9	19
14	14	14	17	13	10	9	7	9	10	11	9	11	8	9	9	8	8	16	11	13	16	6	9	11	11	17
15	4	3	16	6	6	8	43	10	9	16	16	19	18	20	26	17	9	6	3	6	5	6	8	11	12	43
16	18	14	4	7	7	3	4	5	8	16	29	25	22	18	(CM)	14	12	6	5	5	8	20	11	10	12	29
17	10	10	9	3	6	5	13	11	10	21	25	16	16	13	14	11	8	6	3	4	11	14	6	5	10	25
18	4	23	17	13	6	8	11	4	9	12	10	13	13	16	14	13	10	6	7	13	6	9	15	11	11	23
19	9	10	(CM)	18	6	3	14	13	17	28	26	26	18	20	13	10	7	5	6	5	4	5	5	7	12	28
20	(CM)	8	5	(CM)	9	5	7	11	13	17	14	15	16	16	12	18	8	5	6	3	5	1	2	12	9	18
21	2	8	11	4	5	8	5	11	11	10	19	23	17	14	17	13	6	4	5	3	(CM)	6	8	6	9	23
22	10	8	15	(CM)	5	7	(CM)	16	14	16	22	28	23	26	31	18	10	8	14	16	23	7	5	5	15	31
23	11	22	5	4	5	6	7	7	17	15	11	12	12	14	11	12	9	6	5	6	18	24	13	8	11	24
24	5	5	4	4	5	5	7	9	9	7	8	10	10	9	9	10	8	6	5	6	6	5	6	3	7	10
25	6	6	6	10	6	13	3	6	11	24	40	21	24	15	17	12	4	4	3	4	3	7	5	12	11	40
26	7	8	(CM)	7	3	3	6	15	(CM)	15	13	13	18	18	17	12	6	4	3	3	(CM)	(CM)	(CM)	8	9	18
27	16	11	7	(CM)	8	(CM)	16	11	7	10	14	17	20	17	12	8	4	12	4	11	12	8	6	8	11	20
28	9	11	6	14	12	5	7	9	10	16	26	35	24	17	13	11	7	3	8	5	2	5	14	4	11	35
29	7	7	4	3	6	14	9	10	(CM)	14	13	16	25	15	11	12	5	8	4	4	7	12	6	6	9	25
30	(CM)	9	27	17	(CM)	30	9	5	6	6	20	22	26	19	11	10	9	10	6	4	3	3	3	4	12	30
31	4	11	8	3	4	29	22	10	20	9	13	12	13	11	10	19	8	10	9	10	9	4	6	13	11	29
AV	9	9	9	9	8	9	12	9	13	16	20	20	19	17	15	14	9	7	7	8	10	10	10	10	12	
PK	24	23	27	18	17	30	43	16	22	40	41	38	38	32	32	29	24	19	16	16	23	24	29	19		43

SIGMA HORIZ. WIND DIR. @ 60M
DEGREES

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	2	2	4	5	15	6	6	4	17	14	13	15	11	9	10	9	8	8	8	10	11	9	12	11	9	17
2	7	5	6	8	5	7	16	15	27	10	18	32	9	7	8	7	7	12	24	18	17	22	16	17	13	32
3	8	28	23	22	7	34	18	9	8	8	8	11	7	7	10	9	9	4	4	5	3	2	1	3	10	34
4	4	5	9	7	3	10	31	6	13	21	32	27	45	21	35	23	16	5	3	2	17	26	18	10	16	45
5	1	6	4	4	5	12	11	5	10	23	25	30	31	27	19	16	10	18	9	3	0	13	4	13	12	31
6	7	2	2	6	1	7	0	9	9	18	21	32	24	26	14	15	16	5	2	3	24	20	21	31	13	32
7	21	6	16	15	8	5	12	5	12	37	20	10	24	12	10	10	6	3	10	0	6	2	1	5	11	37
8	3	9	7	1	2	0	0	0	17	11	13	18	27	19	11	11	9	5	4	22	3	5	17	22	10	27
9	7	2	6	3	8	3	8	8	17	10	12	12	10	10	10	8	8	5	3	5	8	12	7	4	8	17
10	3	3	4	4	5	8	6	7	10	10	9	10	10	17	14	10	8	4	9	8	10	8	3	5	8	17
11	6	20	14	4	5	3	3	10	17	13	20	24	16	13	12	10	7	4	5	2	6	11	16	10	10	24
12	30	18	1	8	3	5	2	6	11	10	17	14	16	15	15	21	12	4	5	4	9	11	16	12	11	30
13	10	7	4	6	12	9	7	7	12	12	11	8	9	9	10	11	8	7	11	8	8	8	11	9	9	12
14	13	18	18	12	9	5	4	6	8	8	8	10	4	7	6	6	6	12	9	18	18	3	6	9	9	18
15	4	3	8	5	3	3	12	3	7	13	16	17	14	23	15	13	6	3	3	18	2	2	4	5	8	23
16	11	6	10	9	7	5	10	7	8	17	29	23	19	10	(CM)	12	10	7	7	4	5	5	6	5	10	29
17	(CM)	7	6	8	12	15	12	9	12	17	24	15	12	12	13	8	6	3	1	2	12	13	3	2	10	24
18	3	17	19	7	3	6	16	8	8	9	7	10	10	14	10	9	8	4	3	11	4	7	11	10	9	19
19	9	8	7	3	7	4	4	3	10	17	28	20	16	17	10	8	6	4	3	4	4	5	6	4	9	28
20	8	0	0	0	0	0	1	0	5	8	11	12	12	12	9	15	9	3	5	5	5	2	3	(CM)	5	15
21	4	3	7	3	7	7	2	3	11	17	15	19	13	12	13	10	4	2	4	0	0	0	1	10	7	19
22	4	6	(CM)	0	2	5	12	4	8	16	17	24	20	22	24	17	9	6	21	29	24	17	20	21	14	29
23	20	14	6	16	11	7	7	6	21	11	8	9	10	12	9	9	6	4	3	3	6	13	11	12	10	21
24	2	7	7	4	7	3	3	7	7	5	5	7	8	7	7	7	7	5	3	4	6	5	4	3	5	8
25	10	1	6	3	1	10	3	1	6	17	35	21	19	14	14	10	4	4	5	5	3	2	1	7	8	35
26	0	0	0	1	1	1	0	0	10	11	12	11	13	16	13	9	5	3	7	6	2	0	11	6	6	16
27	7	10	6	4	5	0	4	10	11	31	18	16	16	14	10	7	3	7	4	4	5	0	2	6	8	31
28	3	2	8	5	8	7	8	2	7	14	18	30	17	15	12	8	5	3	8	10	5	6	3	5	9	30
29	1	2	0	0	4	3	8	8	13	11	12	13	19	15	9	9	3	5	5	3	4	3	6	5	7	19
30	10	12	9	16	20	18	16	12	8	6	20	16	25	15	8	7	8	8	4	3	2	1	3	1	10	25
31	3	4	4	2	2	14	15	11	12	12	10	10	10	8	8	15	4	5	5	9	8	12	10	0	8	15
AV	7	8	7	6	6	7	8	6	11	14	17	17	16	14	12	11	8	6	6	7	8	8	8	9	9	
PK	30	28	23	22	20	34	31	15	27	37	35	32	45	27	35	23	16	18	24	29	24	26	21	31		45

SIGMA HORIZ. WIND DIR. @ 30M
DEGREES

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	3	3	7	6	10	6	7	6	21	18	14	17	11	10	11	10	9	9	9	11	12	10	14	15	10	21
2	8	7	10	12	7	9	17	15	20	11	23	25	9	7	9	9	7	14	25	12	17	37	25	42	16	42
3	12	18	14	18	16	31	26	11	9	9	8	12	8	9	11	10	12	7	3	10	18	4	4	5	12	31
4	9	10	11	9	13	15	26	8	11	22	37	32	43	32	40	28	30	7	4	5	48	27	18	5	20	48
5	3	4	4	4	9	10	19	5	11	24	32	30	38	31	21	20	11	22	17	14	(CM)	16	9	14	16	38
6	20	14	14	9	8	11	8	8	12	19	25	34	27	28	16	20	21	7	4	6	43	31	39	15	18	43
7	8	9	38	9	4	4	4	5	12	46	35	25	29	22	16	13	7	4	12	17	15	3	7	21	15	46
8	7	15	13	14	23	17	9	15	30	14	18	28	29	20	12	10	17	7	6	24	5	12	22	14	16	30
9	6	9	9	3	13	4	10	10	20	11	13	14	10	11	10	9	9	6	5	7	13	18	9	6	10	20
10	5	4	5	3	6	9	6	8	11	12	9	11	13	19	18	12	9	5	13	9	11	10	5	8	9	19
11	8	30	14	13	(CM)	11	21	12	18	15	24	26	18	15	14	12	9	5	6	7	13	34	27	23	16	34
12	33	30	7	8	8	7	11	20	16	12	20	15	21	23	16	28	16	5	10	4	18	17	22	28	16	33
13	5	4	6	4	8	6	7	5	20	16	12	10	9	10	12	13	10	8	9	9	10	9	13	10	9	20
14	14	18	15	16	9	8	5	8	10	9	9	10	7	8	8	8	7	13	10	18	14	4	11	14	11	18
15	4	4	13	4	5	6	36	5	8	14	16	19	16	24	22	15	7	5	4	12	5	4	6	12	11	36
16	24	12	14	18	17	6	8	4	8	16	30	24	21	26	(CM)	13	12	7	9	4	13	(CM)	15	10	14	30
17	24	9	10	6	5	15	39	20	12	20	24	15	14	12	13	10	7	4	2	3	12	17	4	3	13	39
18	3	21	23	12	4	8	16	5	10	10	8	11	11	15	13	11	8	5	5	12	5	8	12	11	10	23
19	9	9	16	12	10	6	(CM)	7	16	23	29	21	18	19	12	9	7	5	4	6	6	7	7	(CM)	12	29
20	7	14	26	15	14	11	11	9	13	15	12	12	15	13	10	17	10	3	7	7	9	(CM)	7	15	12	26
21	(CM)	13	9	12	6	8	23	21	29	14	17	19	15	13	14	12	5	2	17	7	6	12	9	14	13	29
22	22	17	14	6	16	7	8	7	18	19	25	31	22	23	26	18	9	8	20	42	(CM)	35	8	6	18	42
23	12	17	5	15	7	5	5	5	16	13	9	10	11	12	10	11	7	4	3	4	20	27	20	10	11	27
24	4	4	8	11	7	4	4	8	8	5	6	8	9	8	8	8	8	6	4	5	7	7	7	6	7	11
25	11	14	12	7	6	8	11	12	17	38	36	25	20	15	15	11	5	7	6	8	6	8	4	3	13	38
26	8	9	20	18	20	7	21	17	(CM)	16	12	12	15	16	16	10	5	6	7	7	6	3	13	25	13	25
27	10	14	9	20	14	5	9	25	8	19	15	17	18	15	10	7	3	7	7	(CM)	11	(CM)	8	16	12	25
28	18	(CM)	9	16	15	7	8	16	15	18	24	35	18	17	12	9	6	3	13	9	5	9	9	19	13	35
29	10	29	15	13	19	12	7	13	36	14	13	14	25	15	11	11	5	9	10	8	6	17	11	8	14	36
30	19	11	13	25	30	24	25	6	11	13	21	19	26	17	10	8	8	9	6	4	3	2	4	2	13	30
31	3	6	6	3	2	33	20	9	19	8	14	11	12	10	9	19	5	9	7	12	14	15	(CM)	16	11	33
AV	11	13	13	11	11	10	14	10	16	17	19	19	18	17	14	13	9	7	9	10	13	14	12	13	13	
PK	33	30	38	25	30	33	39	25	36	46	37	35	43	32	40	28	30	22	25	42	48	37	39	42		48

TEMPERATURE @ 10M
DEGREE C

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	8	7	7	6	7	7	8	8	11	10	11	17	16	14	17	16	13	12	11	9	9	9	7	7	10	17
2	6	5	5	5	4	4	4	6	7	6	5	6	6	4	3	3	4	5	3	3	3	2	3	4	4	7
3	4	4	4	4	5	4	5	4	7	8	8	8	3	5	6	6	7	5	3	3	3	4	4	3	5	8
4	3	2	1	1	0	-1	0	3	6	9	13	14	16	17	17	18	18	15	11	9	8	7	6	6	8	18
5	6	7	6	6	6	5	4	7	11	15	18	19	19	19	19	20	19	16	13	11	10	8	7	8	12	20
6	7	6	7	6	6	7	6	9	12	16	18	19	21	21	19	21	19	17	13	12	10	9	9	9	12	21
7	8	9	9	7	7	7	7	9	13	17	19	18	18	17	17	17	14	13	11	10	9	9	9	7	12	19
8	6	6	6	6	5	5	5	7	12	16	18	19	20	21	21	18	17	16	13	11	11	11	9	9	12	21
9	9	9	10	11	10	10	10	11	14	16	16	18	19	19	19	19	18	16	13	11	11	11	12	12	13	19
10	12	12	11	11	12	8	6	6	8	9	8	7	8	13	13	14	13	11	8	7	6	6	4	4	9	14
11	4	3	2	2	1	1	1	3	7	9	12	13	13	12	13	12	10	9	7	5	4	3	3	2	6	13
12	3	3	2	2	1	1	0	2	6	9	11	12	13	14	15	15	14	12	8	7	6	4	4	4	7	15
13	5	6	4	4	3	3	3	5	9	14	17	18	18	18	17	18	17	14	12	11	11	7	5	3	10	18
14	2	3	3	3	3	3	3	4	6	3	4	4	3	4	4	6	7	5	3	2	2	2	2	2	3	7
15	2	1	0	0	0	-1	-1	2	6	8	8	9	9	13	12	12	10	8	4	3	3	3	2	2	5	13
16	1	1	1	1	1	0	0	2	6	10	14	14	13	12	13	13	13	11	7	7	5	4	4	4	6	14
17	3	4	4	3	4	3	3	4	8	12	14	16	17	17	16	14	13	12	11	10	11	9	9	9	9	17
18	8	8	7	8	7	6	6	6	7	10	11	13	13	11	14	14	13	12	10	9	8	7	5	4	9	14
19	3	2	1	-2	-3	-3	-3	-2	2	5	8	9	11	12	12	11	10	7	5	3	2	1	1	-1	4	12
20	-2	-1	-1	-2	-2	-2	-2	-1	4	9	11	13	15	16	16	16	15	12	9	7	7	4	4	3	6	16
21	3	3	2	1	1	1	1	3	6	11	15	18	18	19	19	18	16	13	10	9	7	6	6	4	9	19
22	4	3	3	3	3	3	2	4	8	13	17	19	21	21	20	20	18	14	11	9	8	8	7	7	10	21
23	7	7	7	6	6	4	4	7	11	16	17	18	19	19	19	18	16	13	10	9	8	7	6	6	11	19
24	4	4	4	3	3	4	3	2	2	1	2	2	3	4	4	5	6	4	3	2	1	-1	-1	-2	3	6
25	-2	-2	-3	-3	-3	-4	-4	-2	2	6	9	13	15	16	17	15	13	9	7	6	4	3	2	1	5	17
26	2	1	1	1	1	1	0	2	6	11	13	15	18	19	20	19	17	13	11	9	7	6	4	4	8	20
27	5	4	6	4	4	3	3	7	11	15	18	20	21	21	20	19	16	12	10	9	7	6	6	6	11	21
28	6	5	6	5	3	3	3	4	7	12	16	18	19	19	18	18	17	14	12	11	9	9	8	7	10	19
29	6	5	4	4	4	3	3	3	7	13	16	17	19	19	16	17	15	12	9	9	8	8	8	7	10	19
30	7	6	6	6	6	6	6	6	8	11	13	17	19	18	16	14	13	12	11	9	8	8	8	7	10	19
31	8	7	7	8	8	7	6	7	8	9	9	13	16	16	13	14	12	9	8	7	6	6	5	6	9	16
AV	5	4	4	4	4	3	3	4	8	11	13	14	15	15	15	15	14	11	9	8	7	6	5	5	8	
PK	12	12	11	11	12	10	10	11	14	17	19	20	21	21	21	21	19	17	13	12	11	11	12	12		21
MN	-2	-2	-3	-3	-3	-4	-4	-2	2	1	2	2	3	4	3	3	4	4	3	2	1	-1	-1	-2		

MONTHLY MINIMUM = -4

TEMPERATURE @ 30M
DEGREE C

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	8	8	8	7	7	8	8	8	9	8	11	15	14	10	15	14	13	11	10	9	9	7	3	4	9	15
2	6	6	6	6	5	4	5	6	7	6	5	6	5	4	3	3	4	5	4	3	3	3	4	4	5	7
3	5	4	4	4	6	5	5	4	7	7	7	7	3	5	6	6	6	5	4	4	4	5	5	4	5	7
4	4	2	2	3	2	1	1	4	7	9	12	13	14	15	16	17	17	14	9	4	4	-6	3	4	7	17
5	5	7	7	8	7	6	6	6	9	13	16	17	17	16	14	18	17	15	11	12	9	8	4	3	11	18
6	8	7	8	7	7	1	5	9	12	13	13	14	15	16	15	16	16	16	12	13	7	11	11	11	11	16
7	10	10	9	4	4	8	8	7	13	16	17	17	17	16	16	16	13	12	1	3	8	11	11	8	11	17
8	7	3	6	7	6	6	6	7	12	14	16	8	8	14	9	9	10	6	9	11	9	9	9	8	9	16
9	9	10	11	11	11	11	11	10	9	13	14	16	16	17	17	16	16	14	13	9	12	11	12	13	13	17
10	12	12	12	12	12	7	6	6	7	7	7	6	7	12	11	12	11	8	2	3	6	6	5	4	8	12
11	4	4	3	2	2	2	2	3	7	8	10	11	11	11	11	11	9	9	7	4	4	3	2	-2	6	11
12	-1	-1	1	2	2	1	2	2	6	8	10	11	12	13	13	13	13	11	7	7	5	1	-2	-1	6	13
13	0	0	-1	2	4	4	5	6	9	13	16	16	16	16	16	17	16	14	13	11	11	7	6	3	9	17
14	2	3	3	3	3	3	4	4	6	3	4	4	3	4	4	5	6	5	3	2	2	2	3	2	4	6
15	3	3	2	2	2	2	1	2	5	6	7	9	9	11	11	11	9	3	6	6	4	4	4	3	5	11
16	2	2	2	2	2	2	2	3	6	10	13	12	12	12	12	12	12	11	6	4	4	4	4	5	6	13
17	4	5	5	5	4	4	4	5	8	11	13	14	14	14	14	13	13	12	11	8	8	4	0	1	8	14
18	1	0	8	8	7	6	6	6	7	9	11	12	11	9	13	13	13	12	4	5	9	6	3	4	8	13
19	3	2	1	-1	-2	-2	-2	-2	1	4	6	8	9	10	11	11	9	7	6	4	3	3	3	1	4	11
20	-1	-1	-1	-1	-2	-2	-1	1	4	8	10	12	13	14	14	13	11	10	1	7	7	3	4	0	5	14
21	3	3	2	2	1	1	1	3	7	10	13	16	17	17	17	17	16	13	11	9	8	4	6	6	8	17
22	6	4	2	1	3	4	4	6	9	13	16	18	18	19	18	18	17	14	8	1	2	5	7	8	9	19
23	8	8	9	6	7	6	6	7	11	13	16	16	17	17	16	12	11	12	6	5	9	7	7	6	10	17
24	6	4	5	3	3	4	3	2	2	1	1	2	3	3	4	5	6	6	4	2	1	1	0	-1	3	6
25	-1	-2	-2	-3	-2	-3	-3	-2	2	6	8	11	10	13	12	13	12	9	4	3	4	4	3	2	4	13
26	3	2	2	1	2	2	2	2	5	9	12	13	9	14	11	15	13	7	11	9	3	4	3	6	7	15
27	7	6	7	6	4	4	3	8	11	13	12	14	17	18	17	17	14	13	10	9	6	8	7	8	10	18
28	7	6	7	-2	5	4	4	6	7	11	14	15	14	18	17	15	14	13	12	11	9	4	2	6	9	18
29	7	4	5	5	4	4	4	4	7	11	13	11	8	16	14	6	9	10	4	7	8	4	-6	-6	6	16
30	-2	6	6	5	4	2	3	7	9	11	13	14	16	14	13	13	13	10	-4	2	5	8	7	7	8	16
31	8	7	8	8	9	6	4	3	0	9	7	9	13	13	7	7	9	7	8	8	7	6	6	6	7	13
AV	5	4	5	4	4	4	4	5	7	10	11	12	12	13	12	12	12	10	7	6	6	5	4	4	7	
PK	12	12	12	12	12	11	11	10	13	16	17	18	18	19	18	18	17	16	13	13	12	11	12	13		19
MN	-2	-2	-2	-3	-2	-3	-3	-2	0	1	1	2	3	3	3	3	4	3	-4	1	1	-6	-6	-6		

MONTHLY MINIMUM = -6

TEMPERATURE @ 60M
DEGREE C

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	9	9	8	8	7	8	8	8	10	9	11	16	15	13	16	14	13	12	11	9	10	9	7	7	10	16
2	6	6	6	6	4	4	4	6	7	6	4	6	5	4	3	2	3	5	4	3	4	3	4	4	5	7
3	5	4	5	4	6	5	5	4	7	7	7	7	3	5	5	6	6	5	4	5	5	5	5	5	5	7
4	4	3	2	2	2	2	2	4	8	9	12	13	14	15	15	16	16	14	11	11	9	8	8	7	9	16
5	7	8	8	8	7	7	7	9	12	14	16	17	18	18	18	18	17	16	13	12	11	11	9	9	12	18
6	9	9	8	8	8	8	8	10	13	15	17	18	19	19	18	19	18	17	14	13	12	11	11	11	13	19
7	11	11	10	9	9	9	9	11	13	16	18	17	17	17	17	16	14	14	13	11	11	11	10	10	13	18
8	9	8	7	8	7	7	7	9	12	15	17	18	18	19	19	17	16	16	14	12	12	12	11	11	13	19
9	11	11	11	12	11	11	11	11	13	14	15	17	18	18	18	17	17	15	14	13	12	12	12	13	14	18
10	12	12	12	12	12	9	6	6	7	8	7	6	8	12	12	12	12	10	9	7	6	6	5	4	9	12
11	5	4	3	2	2	2	3	4	6	8	10	11	11	11	11	11	9	9	8	6	5	4	4	4	6	11
12	3	3	2	2	2	2	2	3	6	8	9	11	12	13	13	13	13	11	9	8	8	6	6	6	7	13
13	6	7	6	6	6	5	6	7	9	14	16	17	16	16	16	17	16	14	13	12	11	8	5	3	10	17
14	2	3	3	3	3	3	4	4	6	8	4	4	3	4	4	5	6	4	3	2	3	3	3	3	4	8
15	4	3	2	2	2	2	1	3	6	7	7	8	8	11	11	11	9	7	7	6	4	4	4	3	5	11
16	3	3	2	2	2	2	2	3	7	9	12	12	12	12	12	12	12	11	9	8	7	5	6	7	7	12
17	5	5	6	6	5	5	4	6	9	12	13	15	16	15	14	14	13	12	12	12	11	10	9	10	10	16
18	9	8	8	8	7	7	6	6	7	9	11	12	13	9	13	13	13	12	11	10	9	8	6	4	9	13
19	3	2	1	-1	-2	-2	-2	-2	1	4	6	7	9	10	11	10	9	7	6	4	3	3	2	1	4	11
20	0	-1	-1	-1	-2	-2	-2	1	4	8	10	12	13	14	14	14	14	11	9	8	7	6	4	4	6	14
21	4	4	3	3	2	2	2	4	7	11	13	16	17	17	17	17	16	13	11	9	8	7	7	7	9	17
22	7	6	6	4	4	4	4	7	9	13	17	18	18	19	18	18	17	14	12	10	9	9	9	9	11	19
23	9	8	9	8	8	7	7	8	12	15	16	17	18	18	17	17	16	13	12	12	11	9	8	7	12	18
24	7	6	6	4	4	4	4	2	1	1	1	2	3	3	4	4	5	5	4	2	1	1	1	0	3	7
25	-1	-2	-2	-3	-2	-2	-3	-1	2	6	8	11	13	14	14	13	12	9	8	7	5	4	3	2	5	14
26	3	3	3	3	2	2	2	3	6	9	12	14	16	17	18	18	16	13	11	10	8	7	7	7	9	18
27	7	7	8	6	6	4	5	8	12	16	18	18	19	19	19	18	15	13	11	9	8	8	8	9	11	19
28	8	7	7	7	6	6	5	6	8	11	14	17	18	18	17	17	16	14	13	11	11	10	9	8	11	18
29	7	7	7	6	6	5	4	6	8	12	14	16	17	18	15	16	14	12	11	10	10	9	9	9	10	18
30	8	8	8	7	7	7	8	8	10	11	13	16	18	16	15	13	13	12	11	11	9	9	9	9	11	18
31	9	9	8	9	9	8	7	8	8	9	8	12	14	14	12	13	12	10	8	9	8	8	7	7	10	14
AV	6	6	6	5	5	5	4	6	8	10	12	13	13	14	14	14	13	11	10	9	8	7	7	6	9	
PK	12	12	12	12	12	11	11	11	13	16	18	18	19	19	19	19	18	17	14	13	12	12	12	13		19
MN	-1	-2	-2	-3	-2	-2	-3	-2	1	1	1	2	3	3	3	2	3	4	3	2	1	1	1	0		

MONTHLY MINIMUM = -3

DELTA TEMPERATURE 60-10M
DEGREE C*100

CB-TRACT
TRAILER AA23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	83	133	56	94	50	17	11	11	-83	-56	-39	-122	-111	-100	-128	-106	-83	-61	-28	-17	-11	-17	-28	-33	-24	133
2	-44	-17	0	-6	-33	-28	-17	-17	-56	-67	-56	-61	-56	-67	-61	-56	-67	-6	39	39	89	83	72	72	-13	89
3	56	67	50	22	22	17	-6	-33	-39	-61	-61	-83	-50	-44	-61	-56	-72	-50	33	94	100	94	94	94	5	100
4	78	33	11	100	206	161	128	56	122	-50	-189	-206	-189	-189	-178	-211	-183	-117	61	128	111	150	194	144	7	206
5	139	89	100	144	111	150	156	144	50	-111	-194	-178	-222	-156	-144	-211	-178	-100	-11	56	44	139	194	150	7	194
6	211	228	150	194	167	83	144	33	78	-128	-167	-161	-211	-228	-161	-217	-139	-67	106	167	144	128	128	133	26	228
7	161	83	67	167	189	150	183	194	50	-133	-161	-122	-100	-83	-72	-72	-39	133	200	67	67	128	89	233	57	233
8	217	139	172	150	156	150	144	217	44	-83	-161	-189	-211	-206	-206	-133	-67	-61	22	72	83	117	56	50	20	217
9	78	83	78	44	56	33	22	11	-128	-111	-128	-150	-167	-194	-228	-172	-128	-150	17	106	150	117	33	33	-29	150
10	33	33	67	83	50	28	-28	-39	-72	-111	-106	-83	-89	-150	-139	-144	-111	-56	28	50	50	11	33	17	-27	83
11	83	61	67	6	39	56	144	28	-72	-111	-172	-206	-167	-156	-128	-128	-89	-50	50	106	44	111	128	111	-10	144
12	33	44	33	28	94	133	122	128	-61	-144	-161	-144	-167	-194	-194	-172	-183	-100	50	72	183	156	94	144	-9	183
13	94	89	78	128	217	194	194	194	0	-83	-117	-133	-172	-156	-106	-144	-100	-22	22	67	11	-17	-11	-56	7	217
14	-22	17	0	-22	-6	6	28	-6	-67	0	-6	-67	-22	-56	-44	-72	-106	-56	-17	-6	22	44	94	83	-12	94
15	183	278	178	178	183	183	133	111	-44	-128	-100	-150	-128	-228	-200	-172	-122	-50	139	172	94	156	200	183	44	278
16	156	139	156	100	156	200	172	144	100	-33	-194	-189	-128	-94	-122	-89	-83	-22	128	172	150	94	100	161	49	200
17	156	83	150	172	111	200	178	117	83	-83	-100	-133	-167	-139	-106	-83	-44	0	89	122	39	0	28	83	31	200
18	33	22	44	6	-6	6	17	-6	-17	-78	-100	-106	-106	-94	-144	-122	-89	-6	72	106	128	72	28	6	-14	128
19	22	22	67	56	44	94	83	6	-106	-172	-211	-244	-206	-194	-167	-133	-111	-17	44	72	100	100	94	128	-26	128
20	150	56	6	33	33	6	28	156	50	-128	-150	-172	-183	-183	-156	-178	-150	-33	44	44	22	117	78	56	-19	156
21	144	111	78	189	117	78	94	156	94	-28	-178	-167	-222	-222	-194	-178	-106	-28	61	-61	94	100	128	244	13	244
22	217	156	211	128	94	100	156	172	44	-67	-67	-172	-211	-217	-189	-206	-133	-6	139	94	111	133	172	183	35	217
23	200	150	156	200	150	239	239	172	44	-100	-117	-144	-139	-161	-178	-156	-100	28	189	278	256	156	200	67	68	278
24	150	117	89	83	56	44	39	-22	-67	-78	-83	-83	-89	-83	-83	-72	-61	6	17	33	28	67	94	78	7	150
25	67	-17	6	33	100	100	139	28	11	-122	-139	-217	-250	-206	-222	-150	-106	-17	44	67	94	61	78	122	-21	139
26	122	94	167	217	117	161	100	72	6	-183	-167	-144	-222	-233	-233	-161	-122	-39	50	89	83	78	183	239	11	239
27	211	256	150	161	172	122	122	78	144	0	-56	-172	-217	-217	-150	-117	-22	83	72	-56	106	206	156	233	53	256
28	206	117	83	122	178	167	178	100	78	-83	-139	-222	-233	-228	-133	-111	-106	-11	33	56	50	67	83	67	13	206
29	122	194	222	144	122	211	144	178	78	-156	-183	-133	-250	-183	-89	-144	-78	-22	56	72	156	156	139	144	38	222
30	156	167	244	144	150	150	122	161	111	44	-56	-172	-239	-217	-211	-117	-61	-39	-22	50	67	106	61	178	32	244
31	83	133	72	128	111	72	122	144	33	-22	-50	-117	-144	-172	-94	-128	-89	33	72	139	161	161	167	94	38	167
AV	115	102	97	104	103	106	106	87	13	-86	-123	-150	-163	-163	-146	-136	-101	-29	58	79	91	99	102	111	12	
PK	217	278	244	217	217	239	239	217	144	44	-6	-61	-22	-44	-44	-56	-22	133	200	278	256	206	200	244		278
MN	-44	-17	0	-22	-33	-28	-28	-39	-128	-183	-211	-244	-250	-233	-233	-217	-183	-150	-28	-61	-11	-17	-28	-56		

MONTHLY MINIMUM = -250

BAROMETRIC PRESSURE
MILLIBARS

CB-TRACT
TRAILER AB23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	795	795	795	795	795	795	795	795	795	795	794	793	792	792	791	791	791	791	791	792	792	793	793	793	793	795
2	793	793	792	792	792	792	792	792	792	792	792	792	792	792	793	793	793	793	793	793	793	793	794	794	793	794
3	793	793	793	793	793	793	793	793	793	794	794	794	794	794	794	794	794	794	794	794	795	795	796	796	794	796
4	796	796	796	796	796	797	798	798	798	798	798	798	797	797	796	796	796	796	797	797	797	797	797	797	797	798
5	797	797	797	797	797	797	798	798	798	798	798	797	797	796	796	796	796	796	797	797	797	798	798	798	797	798
6	798	798	798	798	798	798	798	798	799	799	798	798	798	797	797	796	796	796	796	797	797	797	797	797	797	799
7	797	797	797	797	797	797	797	797	797	797	796	796	796	796	795	795	796	796	796	796	797	797	797	797	797	797
8	797	797	797	797	797	797	797	798	798	798	798	797	797	796	796	796	796	796	797	797	798	798	797	797	797	798
9	797	797	797	797	797	797	797	797	798	798	798	797	796	796	796	796	796	796	796	796	796	796	796	796	797	798
10	796	796	795	796	795	796	797	797	796	796	797	797	794	794	794	793	793	795	795	795	796	796	796	796	795	797
11	796	796	796	796	796	797	797	797	797	797	797	796	796	796	795	796	796	797	797	797	798	798	798	799	797	799
12	800	799	799	799	800	799	799	799	799	798	798	798	798	798	797	796	795	796	796	796	795	795	795	795	797	800
13	795	794	794	793	793	793	792	792	791	790	789	789	789	788	788	787	787	786	786	786	785	787	786	787	789	795
14	787	786	786	786	786	786	787	787	788	788	788	788	788	788	788	788	789	789	790	791	791	791	791	792	788	792
15	792	792	792	792	793	793	793	794	794	794	794	794	794	794	794	794	794	794	795	795	796	796	796	796	794	796
16	796	796	796	796	797	797	797	797	797	797	797	797	796	796	796	796	795	796	796	796	796	796	796	796	796	797
17	796	796	796	796	796	796	796	796	796	796	796	795	795	794	794	794	794	794	794	794	794	794	794	794	795	796
18	794	794	794	794	794	794	794	794	794	794	794	794	793	793	793	793	793	793	793	794	794	795	796	796	794	796
19	796	797	797	797	798	798	798	798	798	798	797	797	796	795	795	795	795	795	795	796	796	796	796	796	796	798
20	796	796	796	796	796	796	796	796	796	796	796	796	795	795	794	794	795	795	795	796	796	797	797	797	796	797
21	797	797	797	798	798	798	798	799	799	799	799	798	798	798	798	798	798	798	799	799	799	799	799	799	798	799
22	799	799	799	799	799	799	799	800	800	800	799	799	798	797	797	797	797	797	797	797	797	798	797	797	798	800
23	797	797	797	797	797	797	796	796	796	796	795	795	794	793	793	793	793	793	793	793	793	793	794	794	795	797
24	795	795	795	796	796	797	797	798	799	800	800	801	801	801	801	802	802	802	803	803	804	804	804	805	800	805
25	805	804	804	805	805	805	806	806	806	806	806	805	805	804	804	804	804	804	804	804	804	804	804	804	805	806
26	804	804	804	804	804	803	803	803	803	803	803	802	802	801	801	801	800	800	801	801	801	801	801	800	802	804
27	800	800	800	799	799	799	799	799	799	799	799	798	797	797	796	796	796	796	797	797	797	798	798	798	798	800
28	798	799	799	799	799	800	800	800	800	800	799	799	799	798	798	798	798	798	799	799	799	800	800	800	799	800
29	800	800	800	800	800	801	801	801	801	801	801	801	800	799	799	799	799	799	800	800	800	800	800	799	800	801
30	799	799	799	799	799	799	799	799	799	799	799	798	797	797	797	797	797	798	798	797	797	797	797	797	798	799
31	797	797	797	797	797	797	797	797	797	797	797	796	794	794	795	795	795	795	795	795	796	796	796	796	796	797
AV	797	797	797	797	797	797	797	797	797	797	797	797	796	796	796	795	795	796	796	796	796	797	797	797	796	
PK	805	804	804	805	805	805	806	806	806	806	806	805	805	804	804	804	804	804	804	804	804	804	804	805		806
MN	787	786	786	786	786	786	787	787	788	788	788	788	788	788	788	787	787	786	786	786	785	787	786	787		

MONTHLY MINIMUM = 785

PRECIPITATION
CM*100

CB-TRACT
TRAILER AB23
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TL	PEAK
1																									( )	
2									38	23															61	38
3												38	25	20	10	3									97	38
4							10	10	10	5															36	10
5																									( )	
6																									( )	
7																									( )	
8																									( )	
9																									( )	
10																									( )	
11				8	33	28	10																		79	33
12																									( )	
13																									( )	
14																									( )	
15															13	13	13								38	13
16																									( )	
17																									( )	
18	3	3																							5	3
19																									( )	
20																									( )	
21																									( )	
22																									( )	
23																									( )	
24																									( )	
25																									( )	
26																									( )	
27																									( )	
28																									( )	
29																									( )	
30																									( )	
31																									( )	
TL	3	3	( )	8	33	28	20	10	48	28	( )	38	25	20	23	15	13	( )	( )	( )	( )	( )	( )	( )	315	
PK	3	3		8	33	28	10	10	38	23		38	25	20	13	13	13									38

PRECIPITATION
CM*100

CB TRACT
MRI AD28
OCT 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1									5												8	10	36	3	61
2	5	10	3						38		5	25	38	15											140
3													25					3							28
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									
13																					13	3	71		86
14									30		5						3	13		3					53
15																									
16																									
17																									
18																									
19																									
20																									
21																									
22																									
23																									
24																									
25																									
26																									
27																									
28																									
29																									
30																									
31																									
TL	5	10	3						74		10	25	63	15			3	15		3	20	13	107	3	368

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STABILITY CLASS USING DT/DZ                                                    CB-TRACT
DT 60-10M                                                                      TRAILER AA23
WS 10M                                                                          OCT  1983
                                                                               OCCIDENTAL OIL SHALE, INC.

                                               HOUR (LOCAL STANDARD TIME)

DAY   1    2    3    4    5    6    7    8    9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24   AVE

  1   E    F    E    F    E    E    E    E    C    D    D    C    D    D    D    D    D    D    D    E    E    E    D    D    D
  2   D    E    E    E    D    D    E    E    D    D    D    D    D    D    D    D    D    E    E    E    F    F    E    E    E
  3   E    E    E    E    E    E    E    D    D    D    D    C    D    D    D    D    D    D    E    F   ( )   F    F    F    E
  4   F    E    E    F    F    F    F    E    F    D    A    A    A    A    A    A   ( )   A    E    E    F    F    F    F    D
  5   F    F    F    F    F    F    F    F    E    A    A    A    A    A    B    B    B    A    E    E    E    F    F    F    D
  6   F    F    F    F    F    F    F    E    F    A    A    A    A    A    B    A    A    D    E    F    F    F    F    F    D
  7   F    F    E    F    F    F    F    F    E    A    A    A    A    C    D    D    D    F    F    E    E    F    F    F    E
  8  ( )   F    F    F    F    F    F    F    E    C    A    A    A    A    B    B    D    D    E    E    F    F    E    E    D
  9   F    F    F    E    E    E    E    E    A    B    B    C    D    D    C    C    B    B    E    F    F    F    E    D    D
 10   D    D    D    D    E    E    D    D    D    B    B    C    B    A    A    B    B    D    E    E    E    E    E    E    D
 11   F    E    E    E    E    E    F    E    D    A    A    A    B    B    B    B    B    D    E    F    E    F    F    F    D
 12   E    E    E    E    F    F    F    F    D    A    B    B    B    B    B    A    A    A    E    E    F    F    F    F    D
 13   F    F    F    F    F    F    F    F    E    C    B    C    D    C    B    B    B    E    E    E    E    E    E    D    E
 14   E    E    E    E    E    E    E    E    D    E    E    D    D    D    D    D    B    D    E    E    E    E    F    F    E
 15   F    F    F    F    F    F    F    F    D    B    A    B    A    A    A    B    B    D    F    F    F    F    F    F    D
 16   F    F    F    F    F    F    F    F    F    D    A    A    A    B   ( )   B    C    E    F    F    F    F    F    F    E
 17   F    F    F    F    F    F    F    F    F    C    A    B    B    B    B    C    D    E    F    F    E    E    D    E    E
 18   E    E    E    E    E    E    E    E    E    C    B    B    B    B    B    C    B    E    E    F    F    E    E    E    D
 19   E    E   ( )   E    E    F    F    E    A    A    A    A    B    B    B    B    B    E    E    E    F    F    F    F    D
 20  ( )   E    E   ( )   E    E    E    F    E    A    B    B    B    B    B    A    A    D    E    E    E    F    F    E    D
 21   F    F    F    F    F    F    F    F    F    D    A    A    B    B    B    B    B    D    E    D   ( )   F    F    F    D
 22   F    F    F   ( )   F    F   ( )   F    E    D    D    A    A    A    A    A    A    E    F    F    F    F    F    F    D
 23   F    F    F    F    F    F    F    F    E    B    C    B    C    B    D    C    B    E    E    E    F    F    F    E    E
 24   F    F    F    F    E    E    E    E    D    C    C    C    B    C    C    D    D    E    E    E    E    E    F    F    E
 25   E    E    E    E    F    F    F    E    E    A    A    A    A    A    A    A    B    E    E    E    F    E    F    F    D
 26   F    F   ( )   F    F    F    F    E   ( )   A    A    B    A    A    B    B    B    D    E    F   ( )  ( )  ( )   F    D
 27   F    F    F   ( )   F   ( )   F    F    F    E    D    A    B    B    B    B    E    F    E    D    F    F    F    F    E
 28   F    F    F    F    F    F    F    F    F    C    A    A    A    B    B    B    A    E    E    E    E    E    F    E    D
 29   F    F    F    F    F    F    F    F   ( )   A    A    B    A    B    B    B    C    E    E    E    F    F    F    F    D
 30  ( )   F    F    F   ( )   F    F    F    F    E    D    B    A    B    B    B    D    D    E    E    E    E    E    F    E
 31   F    F    E    E    E    E    F    F    E    E    D    B    B    C    B    A    B    E    E    F    F    F    F    F    E

AVE   F    F    F    F    F    F    F    E    E    C    B    B    B    B    B    B    C    D    E    E    F    F    F    F    D


 TOTAL OCCURRENCES:  A= 82     B= 90     C= 28     D= 85     E=189     F=250     HOURS MISSING= 20
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                     NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

         NITRIC OXIDE (NO)                                                                        CATHEDRAL BLUFFS SHALE OIL

                              TRAILER   AB23      PERIOD(10/01/83 TO 10/31/83)
                                                       WIND DIRECTION
                   N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
 CONCENTRATION
      MAX          1    1    1    2    2    3    1    2    1    2    2    2    2    1    2    2    1
    UG/M**3
               ..........................................................................................
   GT   65. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  60. - 65. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  55. - 60. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  50. - 55. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  45. - 50. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  40. - 45. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  35. - 40. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  30. - 35. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  25. - 30. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  20. - 25. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  15. - 20. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  10. - 15. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
   5. - 10. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
   LT    5. :   23   13   12   27   34   49   42   43   61  102  115   36   24   28   55   52   20 :   736
    TOTAL   :   23   13   12   27   34   49   42   43   61  102  115   36   24   28   55   52   20     736
               ..........................................................................................
    MEAN         0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0       0
    CONC.

               0 = NO OBSERVATIONS
```

(12/09/83-RPI)

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

OXIDES OF NITROGEN (NOX) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(10/01/83 TO 10/31/83)

CONCENTRATION UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	7	5	3	5	3	7	5	3	5	7	5	5	5	7	9	13	3	
GT 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
60. - 65. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
55. - 60. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
50. - 55. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
45. - 50. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
40. - 45. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
35. - 40. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
30. - 35. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
25. - 30. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
20. - 25. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
15. - 20. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
10. - 15. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0 :	1
5. - 10. :	1	1	0	1	0	1	2	0	1	1	1	1	1	3	2	4	0 :	20
LT 5. :	22	12	12	26	34	48	40	43	60	101	114	35	23	25	53	47	20 :	715
TOTAL :	23	13	12	27	34	49	42	43	61	102	115	36	24	28	55	52	20	736
MEAN CONC.	2	2	2	2	2	1	1	1	2	1	2	2	1	2	2	2	2	2

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

NITROGEN DIOXIDE (NO2) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(10/01/83 TO 10/31/83)

CONCENTRATION UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	5	5	3	3	3	3	5	3	5	5	5	5	5	5	9	9	3	
GT 65.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60. - 65.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55. - 60.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50. - 55.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45. - 50.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40. - 45.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35. - 40.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30. - 35.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25. - 30.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20. - 25.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15. - 20.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10. - 15.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5. - 10.	1	1	0	0	0	0	1	0	1	1	1	1	1	1	2	5	0	16
LT 5.	22	12	12	27	34	49	41	43	60	101	114	35	23	27	53	47	20	720
TOTAL	23	13	12	27	34	49	42	43	61	102	115	36	24	28	55	52	20	736
MEAN CONC.	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	2	1	1

0 = NO OBSERVATIONS

(12/09/83-RPI)

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

OZONE (O3)　　CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23　　PERIOD(10/01/83 TO 10/31/83)

CONCENTRATION MAX UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	WIND DIRECTION S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	80	76	76	76	84	78	80	78	88	86	86	82	82	80	88	88	82	
GT 140. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
130. - 140. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
120. - 130. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
110. - 120. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
100. - 110. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
90. - 100. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
80. - 90. :	2	0	0	0	1	0	1	0	3	3	16	1	1	2	14	18	1 :	63
70. - 80. :	4	4	3	2	7	13	5	9	12	18	18	7	5	5	14	14	7 :	147
60. - 70. :	12	6	4	7	6	7	14	9	11	30	36	12	11	12	14	13	7 :	211
50. - 60. :	4	3	1	10	8	16	8	12	15	21	27	5	1	3	6	4	2 :	146
40. - 50. :	1	0	3	3	4	3	8	3	4	9	8	5	3	2	2	1	1 :	60
30. - 40. :	0	1	0	0	0	0	0	0	2	2	1	1	0	0	0	0	0 :	7
20. - 30. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 20. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
TOTAL :	23	14	11	22	26	39	36	33	47	83	106	31	21	24	50	50	18	634
PERCENT	4.	2.	2.	3.	4.	6.	6.	5.	7.	13.	17.	5.	3.	4.	8.	8.	3.	100.

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

CARBON MONOXIDE (CO)

CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23

PERIOD(10/01/83 TO 10/31/83)

CONCENTRATION UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	57	45	45	45	57	57	57	57	57	57	57	57	45	57	57	57	45	
GT 1300. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
1200. -1300. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
1100. -1200. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
1000. -1100. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
900. -1000. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
800. - 900. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
700. - 800. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
600. - 700. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
500. - 600. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
400. - 500. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
300. - 400. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
200. - 300. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
100. - 200. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 100. :	23	13	12	27	34	49	42	43	61	103	115	36	24	28	55	52	20 :	737
TOTAL :	23	13	12	27	34	49	42	43	61	103	115	36	24	28	55	52	20	737
MEAN CONC.	38	41	43	38	41	40	40	42	42	40	40	39	41	39	36	36	37	39

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

SULFUR DIOXIDE (SO2) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(10/01/83 TO 10/31/83)

CONCENTRATION	WIND DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX UG/M**3	10	5	5	10	13	10	10	10	10	10	10	5	7	13	15	15	5	
GT 13. :	0	0	0	0	1	0	0	0	0	0	0	0	0	1	3	1	0 :	6
12. - 13. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
11. - 12. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
10. - 11. :	1	0	0	3	1	1	1	1	3	5	3	0	0	0	1	7	0 :	27
9. - 10. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
8. - 9. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
7. - 8. :	4	0	0	3	1	6	3	5	12	11	3	0	2	2	7	2	0 :	61
6. - 7. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
5. - 6. :	8	6	8	5	7	11	10	14	17	39	37	17	15	10	16	9	1 :	230
4. - 5. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
3. - 4. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
2. - 3. :	4	4	3	11	18	25	24	18	14	31	52	16	6	12	22	20	15 :	295
1. - 2. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 1. :	6	3	1	5	6	6	4	5	15	17	20	3	1	3	6	13	4 :	118
TOTAL :	23	13	12	27	34	49	42	43	61	103	115	36	24	28	55	52	20	737
MEAN CONC.	4	3	4	4	3	3	3	3	4	4	3	3	4	4	4	3	2	3

0 = NO OBSERVATIONS

(12/09/83-RPI)

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

HYDROGEN SULFIDE (H2S) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(10/01/83 TO 10/31/83)

CONCENTRATION UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	6	4	6	8	8	9	9	8	8	9	8	6	8	8	8	6	4	
GT 13.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12. - 13.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11. - 12.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10. - 11.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9. - 10.	0	0	0	0	0	3	1	0	0	1	0	0	0	0	0	0	0	5
8. - 9.	0	0	0	2	2	0	4	2	1	2	2	0	2	2	2	0	0	21
7. - 8.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6. - 7.	1	0	1	1	0	0	0	0	1	1	0	2	0	0	0	2	0	9
5. - 6.	1	0	0	0	0	0	0	1	0	0	2	0	0	2	4	2	0	12
4. - 5.	3	4	1	8	3	5	4	1	5	14	15	11	6	5	11	12	2	110
3. - 4.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2. - 3.	7	4	2	5	8	8	7	10	12	35	32	7	8	5	7	8	6	171
1. - 2.	3	1	4	1	8	17	3	12	6	14	24	9	5	9	15	9	1	141
LT 1.	9	6	5	9	12	15	23	17	36	38	40	7	3	4	14	15	11	264
TOTAL	24	15	13	26	33	48	42	43	61	105	115	36	24	27	53	48	20	733
MEAN CONC.	2	1	1	2	1	1	1	1	1	1	1	2	2	2	2	2	1	2

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

10 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(10/01/83 TO 10/31/83)

WIND SPEED MAX METERS/SEC		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR		TOTAL
		3	4	2	1	2	2	2	3	9	9	6	5	4	4	4	4	0		
GT 11.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
8. - 11.	:	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	:	5
5. - 8.	:	0	0	0	0	0	0	0	0	9	5	14	1	0	0	0	0	0	:	29
3. - 5.	:	2	1	0	0	0	0	0	2	12	30	27	5	6	2	8	8	0	:	103
1. - 3.	:	11	8	3	11	15	36	24	25	13	35	48	16	13	18	36	35	0	:	347
LT 1.	:	11	6	10	16	19	13	18	16	24	33	26	14	5	8	12	9	0	:	240
TOTAL	:	24	15	13	27	34	49	42	43	61	105	115	36	24	28	56	52	0		724
PERCENT		3.	2.	2.	4.	5.	7.	6.	6.	8.	15.	16.	5.	3.	4.	8.	7.	0.		100.

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

30 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(10/01/83 TO 10/31/83)

WIND SPEED MAX METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
	4	5	3	2	3	4	4	6	12	12	9	7	5	5	5	5	0	
GT 11. :	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0 :	5
8. - 11. :	0	0	0	0	0	0	0	0	10	4	8	0	0	0	0	0	0 :	22
5. - 8. :	0	1	0	0	0	0	0	4	7	33	19	4	1	2	2	1	0 :	74
3. - 5. :	4	3	1	0	1	8	9	9	14	23	17	7	12	6	25	18	0 :	157
1. - 3. :	16	9	6	11	12	40	26	13	17	17	16	16	17	16	29	18	0 :	279
LT 1. :	9	7	10	11	13	10	13	19	16	11	21	13	8	11	12	9	0 :	193
TOTAL :	29	20	17	22	26	58	48	45	68	89	81	40	38	35	68	46	0	730
PERCENT	4.	3.	2.	3.	4.	8.	7.	6.	9.	12.	11.	5.	5.	5.	9.	6.	0.	100.

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

60 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23   PERIOD(10/01/83 TO 10/31/83)

WIND SPEED MAX METERS/SEC	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
	4	5	4	2	1	4	4	6	14	12	9	8	7	5	5	6	0	
GT 11.	0	0	0	0	0	0	0	0	5	1	0	0	0	0	0	0	0	6
8. - 11.	0	0	0	0	0	0	0	0	10	13	16	1	0	0	0	0	0	40
5. - 8.	0	1	0	0	0	0	0	6	12	37	15	4	3	2	7	5	0	92
3. - 5.	8	5	2	0	0	7	8	17	14	15	18	8	12	10	23	25	0	172
1. - 3.	18	7	6	4	10	26	25	23	22	26	13	10	16	22	27	18	0	273
LT 1.	12	6	6	8	15	16	17	13	6	10	11	9	4	8	9	7	0	157
TOTAL	38	19	14	12	25	49	50	59	69	102	73	32	35	42	66	55	0	740
PERCENT	5.	3.	2.	2.	3.	7.	7.	8.	9.	14.	10.	4.	5.	6.	9.	7.	0.	100.

0 = NO OBSERVATIONS

```
FIVE MAXIMUM SLIDING AVERAGE                                  C-B TRACT
UG/M**3                                                       SITE AB23
                                                              OCT  1983
                                                              CATHEDRAL BLUFFS SHALE OIL CO.

     COMPONENT        AVG. TIME       RANK      DAY     HOUR(BEG)     VALUE

       SO2               3 HR
                                        1        12          9          14.0
                                        2        12         12          12.2
                                        3        11          9          11.3
                                        4        13          8          11.3
                                        5        11         12          10.5

       SO2              24 HR
                                        1        11         19           9.9
                                        2        12         20           8.7
                                        3        10         18           7.3
                                        4         1          1           6.2
                                        5        18         19           5.8

       CO                1 HR
                                        1         1          8          60.0
                                        2         1         10          60.0
                                        3         1         11          60.0
                                        4         1         12          60.0
                                        5         1         22          60.0

       CO                8 HR
                                        1        31         15          60.0
                                        2         1          5          50.0
                                        3         1         17          50.0
                                        4         5          1          50.0
                                        5         2          1          50.0

       O3                1 HR
                                        1        28         15          88.3
                                        2        29         12          88.3
                                        3        29         13          88.3
                                        4        29         14          88.3
                                        5        30          4          88.3

       PART             24 HR
                                        1        29          1          18.3
                                        2        13          1          12.3
                                        3         1          1          11.5
                                        4        17          1           8.8
                                        5        21          1           7.0
```

DATA ACQUISITION INSTRUMENT EFFICIENCY
CATHEDRAL BLUFFS SHALE OIL COMPANY
A.Q. TRAILER AB23

OCTOBER 1983

GASEOUS PARAMETERS

NOX: 100 %

NO: 100

NO2: 100

O3: 86

CO: 100

SO2: 100

H2S: 100

PARTICULATES: 100 %

METEOROLOGICAL PARAMETERS

WIND SPEED
10 M: 100 %
30 M: 100
60 M: 100

WIND DIRECTION
10 M: 100
30 M: 100
60 M: 100

SIGMA HORIZONTAL WIND DIRECTION
10 M: 100
30 M: 100
60 M: 100

TEMPERATURE
10 M: 100
30 M: 100
60 M: 100

DELTA TEMPERATURE: 100

RELATIVE HUMIDITY: 100

SOLAR RADIATION: 100

BAROMETRIC PRESSURE: 100

PRECIPITATION: 100

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NITRIC OXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	1	0	0	0	0	1	0	1	0	1	1	1	1	0	0	1	0	0	0	0	0	0	2	1	2
2	0	1	0	1	1	1	0	0	1	2	1	1	1	1	(CA)	(CA)	0	0	1	0	1	0	1	1	1	2
3	0	0	0	0	0	1	1	0	(CA)	(CA)	(CA)	(CA)	1	1	1	0	0	0	0	1	1	1	0	1	1	1
4	0	1	1	0	1	1	0	1	1	0	1	1	1	0	0	1	1	0	0	0	0	0	0	2	1	2
5	0	1	0	0	1	0	1	0	1	1	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	1
6	0	0	0	0	0	0	1	1	0	0	1	0	0	1	0	0	1	0	0	0	0	1	0	2	0	2
7	0	1	1	0	0	0	1	1	0	1	1	1	1	0	0	1	0	1	0	1	1	0	0	1	1	1
8	1	1	1	0	1	0	1	1	0	1	2	1	1	1	2	0	0	0	0	1	1	0	0	1	1	2
9	0	1	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	1	0	0	0	0	2	0	2
10	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	1	0	1	1	1
11	0	0	0	0	1	1	1	1	0	0	(CA)	(CA)	(CA)	2	1	2	1	1	1	1	1	1	1	2	1	2
12	1	1	1	1	1	0	1	1	2	1	1	1	1	1	1	1	1	0	1	1	1	1	1	2	1	2
13	1	1	0	1	0	0	1	1	1	1	1	0	0	1	1	0	0	0	1	0	1	1	1	1	1	1
14	1	1	1	0	1	1	0	1	0	1	1	1	0	0	0	0	0	0	1	0	1	0	1	1	1	1
15	0	1	1	0	0	1	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1
16	0	0	1	0	1	1	1	1	0	1	0	0	0	0	0	1	1	0	0	0	0	1	0	2	1	2
17	1	1	1	0	0	0	1	1	0	1	0	0	1	1	1	0	0	1	0	0	1	1	1	1	1	1
18	1	1	1	0	2	1	0	1	0	1	1	1	1	0	0	0	0	1	1	0	1	1	0	1	1	2
19	1	1	1	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
20	1	1	1	0	0	1	0	0	1	0	0	1	1	1	0	1	0	0	1	1	1	0	1	1	1	1
21	0	1	0	1	1	0	1	0	1	1	0	1	0	1	1	0	1	0	1	0	1	1	0	1	1	1
22	1	1	0	1	1	0	0	1	1	1	0	1	1	1	0	1	0	1	0	0	0	0	1	2	1	2
23	0	1	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	1	0	1	0	1
24	0	0	1	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	1	1	0	1
25	0	1	0	0	0	0	1	1	1	1	0	1	1	1	1	1	1	1	0	0	1	1	0	0	1	1
26	0	1	1	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	1	1	1	0	0	1	0	1
27	0	0	1	1	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1
28	1	0	1	0	1	0	0	1	1	0	1	0	1	1	1	0	1	1	0	1	0	0	0	1	1	1
29	1	1	0	0	1	0	0	0	0	1	1	1	0	1	0	0	0	1	0	0	0	0	0	1	0	1
30	0	1	0	0	0	1	1	0	0	1	0	1	1	0	1	1	0	0	1	0	1	0	0	2	1	2
AV	0	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	0	2	1	
PK	1	1	1	1	2	1	1	1	2	2	2	1	1	2	2	2	1	1	1	1	1	1	1	2		2

OXIDES OF NITROGEN
(UG/M3)

CB-TRACT
TRAILER AB23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	2	2	4	4	2	2	4	4	4	4	4	4	4	2	2	2	2	2	2	4	2	4	4	4	3	4
2	6	4	4	4	4	6	4	6	8	9	9	8	6	6	(CA)	(CA)	6	4	4	6	6	8	6	6	6	9
3	6	6	6	6	4	2	4	4	(CA)	(CA)	(CA)	(CA)	6	4	4	4	2	2	4	0	4	2	4	2	4	6
4	4	4	4	4	4	4	2	2	4	4	6	4	4	2	4	2	4	4	4	4	2	2	2	4	3	6
5	4	4	4	4	2	4	6	6	8	6	4	6	6	6	4	4	4	4	4	2	4	4	6	6	4	8
6	8	6	6	6	4	2	4	6	6	4	4	2	4	4	4	4	6	4	2	2	4	2	2	2	4	8
7	4	4	4	4	4	4	2	4	2	4	4	6	4	4	4	4	2	4	4	4	4	4	4	4	4	6
8	2	4	4	4	4	4	4	8	6	9	8	6	4	6	9	6	2	2	2	2	2	2	4	4	4	9
9	6	4	6	4	4	4	4	4	6	4	6	6	6	4	4	4	6	4	6	4	4	4	4	2	4	6
10	4	4	4	2	4	2	4	4	2	4	4	4	4	4	2	2	4	4	2	4	4	4	2	2	3	4
11	4	4	2	4	4	4	4	4	4	4	(CA)	(CA)	(CA)	8	6	6	6	6	4	8	6	6	6	4	5	8
12	8	6	6	6	6	6	4	6	6	6	4	6	4	6	6	6	4	6	6	6	4	4	4	6	5	8
13	6	6	4	4	2	6	4	6	4	4	4	4	4	4	4	4	2	2	4	4	4	4	4	4	4	6
14	4	4	4	4	4	4	2	4	6	4	4	6	4	4	4	2	2	2	4	4	2	4	4	6	4	6
15	4	6	6	2	2	4	2	2	4	4	4	4	4	4	4	2	4	2	4	4	4	2	2	2	3	6
16	4	4	2	2	2	4	4	4	4	4	4	2	4	2	4	6	6	4	6	6	6	4	4	6	4	6
17	6	6	6	6	6	4	6	6	4	6	4	4	4	4	4	6	4	4	6	8	9	8	6	6	5	9
18	6	4	4	4	2	4	2	2	2	4	6	4	4	4	4	4	6	6	4	4	6	2	4	4	4	6
19	4	4	2	4	6	6	2	4	4	6	4	4	4	4	2	4	2	4	4	4	2	4	2	4	4	6
20	4	4	4	6	4	4	4	4	4	4	6	6	4	6	4	6	4	6	6	8	6	8	6	6	5	8
21	6	6	6	6	6	6	4	8	2	4	4	4	6	6	6	4	4	4	4	4	4	4	4	2	4	8
22	6	4	6	4	6	6	4	4	6	6	6	8	6	6	4	6	4	6	4	6	4	4	4	4	5	8
23	6	4	4	4	4	4	6	4	6	6	6	4	4	4	6	4	4	4	6	4	4	6	6	4	4	6
24	8	6	4	4	4	4	6	4	4	4	4	4	4	4	2	4	6	4	4	6	4	4	4	2	4	8
25	4	4	4	4	4	4	4	4	4	6	4	4	4	6	6	6	4	6	4	6	6	6	6	6	5	6
26	6	6	8	8	6	4	6	6	6	6	6	6	4	4	4	2	4	4	4	4	2	4	4	4	5	8
27	4	4	4	4	4	4	4	4	4	6	8	6	6	6	4	6	6	6	4	4	6	4	4	6	5	8
28	6	6	4	4	4	6	4	4	4	4	6	4	4	4	4	4	4	4	4	6	6	4	4	6	4	6
29	6	4	6	4	6	4	4	6	6	6	4	4	4	4	4	4	4	4	6	4	4	4	4	4	4	6
30	4	4	4	4	4	4	4	4	6	4	6	6	4	4	4	4	4	4	2	6	4	6	4	4	4	6
AV	5	4	4	4	4	4	4	4	4	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	
PK	8	6	8	8	6	6	6	8	8	9	9	8	6	8	9	6	6	6	6	8	9	8	6	6		9

NITROGEN DIOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	2	0	4	4	2	2	2	4	2	4	2	2	2	0	2	2	0	2	2	4	2	4	4	0	2	4
2	6	2	4	2	2	4	4	6	6	6	8	6	4	4	(CA)	(CA)	6	4	2	6	4	8	4	4	4	8
3	6	6	6	6	4	0	2	4	(CA)	(CA)	(CA)	(CA)	4	2	2	4	2	2	4	0	2	0	4	0	3	6
4	4	2	2	4	2	2	2	0	2	4	4	2	2	2	4	0	2	4	4	4	2	2	2	0	2	4
5	4	2	4	4	0	4	4	6	6	4	4	6	6	6	4	2	4	4	4	2	4	2	4	4	4	6
6	8	6	6	6	4	2	2	4	6	4	2	2	4	2	4	4	4	4	2	2	4	0	2	0	3	8
7	4	2	2	4	4	4	0	2	2	2	2	4	2	4	4	2	2	2	4	2	2	4	4	2	3	4
8	0	2	2	4	2	4	2	6	6	8	4	4	2	4	6	6	2	2	2	0	0	2	4	2	3	8
9	6	2	6	4	4	4	4	4	6	2	4	6	6	4	2	2	6	4	4	4	4	4	4	0	4	6
10	4	2	2	2	2	0	4	4	2	4	4	4	4	4	2	0	2	4	0	4	2	2	2	0	2	4
11	4	4	2	4	2	2	2	2	4	4	(CA)	(CA)	(CA)	4	4	2	4	4	2	6	4	4	4	0	3	6
12	6	4	4	4	4	6	2	4	2	4	2	4	2	4	4	4	2	6	4	4	2	2	2	2	3	6
13	4	4	4	2	2	6	2	4	2	2	2	4	4	2	2	4	2	2	2	4	2	2	2	2	3	6
14	2	2	2	4	2	2	2	2	6	2	2	4	4	4	4	2	2	2	2	4	0	4	2	4	3	6
15	4	4	4	2	2	2	0	0	4	2	4	4	4	4	4	2	4	0	4	4	4	2	2	0	3	4
16	4	4	0	2	0	2	2	2	4	2	4	2	4	2	4	4	4	4	6	6	6	2	4	2	3	6
17	4	4	4	6	6	4	4	4	4	4	4	4	2	2	2	6	4	2	6	8	8	6	4	4	4	8
18	4	2	2	4	0	2	2	0	2	2	4	2	2	4	4	4	6	4	2	4	4	0	4	2	3	6
19	2	2	0	4	4	6	2	2	2	4	4	4	4	4	2	4	2	4	4	4	2	4	0	2	3	6
20	2	2	2	6	4	2	4	4	2	4	6	4	2	4	4	4	4	6	4	6	4	8	4	4	4	8
21	6	4	6	4	4	6	2	8	0	2	4	2	6	4	4	4	2	4	2	4	2	2	4	0	3	8
22	4	2	6	2	4	6	4	2	4	4	6	6	4	4	4	4	4	4	4	6	4	4	2	0	4	6
23	6	2	2	4	4	4	6	4	6	4	6	4	2	4	4	4	4	4	6	4	4	4	6	2	4	6
24	8	6	2	2	2	4	4	4	4	4	4	4	4	2	2	4	6	4	2	6	2	4	2	0	3	8
25	4	2	4	4	4	4	2	2	2	4	4	2	2	4	4	4	2	4	4	6	4	4	6	6	3	6
26	6	4	6	8	6	2	6	6	4	6	6	6	2	4	4	2	4	4	2	2	0	4	4	2	4	8
27	4	4	2	2	2	4	4	2	4	6	6	6	4	6	4	6	6	6	4	4	6	4	4	4	4	6
28	4	6	2	4	2	6	4	2	2	4	4	4	2	2	2	4	2	2	4	4	6	4	4	4	3	6
29	4	2	6	4	4	4	4	6	6	4	2	2	4	2	4	4	4	2	6	4	4	4	4	2	4	6
30	4	2	4	4	4	2	2	4	6	2	6	4	2	4	2	2	4	4	0	6	2	6	4	0	3	6
AV	4	3	3	4	3	3	3	3	4	4	4	4	3	3	3	3	3	3	3	4	3	3	3	2	3	
PK	8	6	6	8	6	6	6	8	6	8	8	6	6	6	6	6	6	6	6	8	8	8	6	6		8

OZONE
(UG/M3)

CB-TRACT
TRAILER AB23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	57	63	57	53	67	65	59	49	51	67	71	71	71	69	69	69	67	63	59	61	59	61	55	55	62	71
2	55	59	59	57	55	61	57	53	49	45	59	63	67	73	65	61	61	61	53	51	53	59	63	61	58	73
3	67	63	59	61	59	51	51	45	43	53	69	71	(CA)	73	69	71	63	63	57	57	57	53	53	53	59	73
4	49	53	55	53	61	63	63	59	55	47	57	65	69	69	69	71	71	71	69	71	73	71	71	67	63	73
5	65	69	69	67	61	61	61	55	53	63	69	69	67	69	74	76	76	73	67	65	59	61	55	51	65	76
6	53	57	57	57	55	55	53	59	51	63	69	71	71	71	73	73	69	69	67	67	65	69	69	69	64	73
7	65	63	67	63	65	63	67	65	65	67	67	63	65	65	65	65	69	65	63	63	63	61	57	49	63	69
8	45	43	45	55	53	53	51	51	61	53	61	63	69	67	63	67	65	63	63	63	63	63	59	59	58	69
9	55	57	55	55	57	51	55	57	53	61	61	63	69	69	63	65	63	55	53	55	59	61	61	57	59	69
10	51	61	63	61	63	63	59	63	63	63	63	65	67	74	69	67	67	61	63	59	59	61	63	61	63	74
11	61	65	69	69	69	69	69	67	65	69	69	69	69	69	69	69	69	65	63	61	59	59	59	53	65	69
12	49	47	49	49	51	53	59	47	41	41	43	51	57	61	65	63	61	57	53	53	53	53	51	53	52	65
13	47	53	59	59	63	63	59	69	67	69	74	78	80	76	73	74	71	65	63	63	53	59	51	61	64	80
14	55	63	74	76	76	71	67	67	65	(CA)	71	69	69	71	74	76	73	65	61	57	57	59	59	63	67	76
15	65	63	61	61	65	65	63	59	51	67	74	76	80	80	78	76	71	71	71	73	74	73	71	71	69	80
16	69	74	71	69	67	71	71	69	69	73	78	80	80	80	80	84	82	80	73	69	69	71	69	69	74	84
17	65	69	69	69	69	67	69	69	73	76	78	78	80	80	80	80	76	71	71	65	57	47	49	49	69	80
18	51	61	57	55	47	57	63	59	61	61	61	63	63	63	63	65	63	67	65	63	61	63	63	63	61	67
19	59	61	59	57	53	47	39	43	45	59	63	63	63	63	69	67	65	65	67	69	67	71	69	67	60	71
20	63	65	65	63	63	63	63	61	59	59	59	57	59	61	59	53	49	49	49	53	57	55	61	63	58	65
21	59	63	59	53	49	49	49	59	67	78	82	80	84	86	88	88	86	80	80	76	73	73	73	69	71	88
22	63	63	61	57	49	49	45	41	41	41	41	43	49	51	53	53	51	49	47	47	45	47	49	49	49	63
23	47	47	55	59	61	59	61	57	53	59	69	69	69	69	69	69	69	67	65	67	63	63	63	63	62	69
24	61	63	63	63	63	63	63	65	67	69	69	69	69	69	69	69	67	67	69	69	69	69	65	63	66	69
25	63	63	63	63	61	61	61	59	53	49	55	57	59	59	63	71	73	71	67	67	67	69	65	59	62	73
26	55	57	47	43	43	47	49	49	49	55	63	69	69	71	73	71	69	65	65	67	67	67	67	65	60	73
27	61	63	63	63	61	63	59	59	57	59	61	65	69	69	73	73	73	71	69	69	63	63	51	61	64	73
28	53	53	51	51	53	53	61	63	59	57	65	69	69	69	69	69	71	69	69	69	69	69	69	69	63	71
29	69	69	69	69	69	69	69	67	65	67	73	74	76	74	73	74	76	78	71	71	71	73	73	71	71	78
30	67	71	69	69	69	69	71	71	69	69	(IM)	(IM)	(IM)	69	76	76	74	74	74	73	74	74	76	74	72	76
AV	58	60	60	60	60	60	59	58	57	60	65	67	69	69	70	70	68	66	64	64	62	63	62	61	63	
PK	69	74	74	76	76	71	71	71	73	78	82	80	84	86	88	88	86	80	80	76	74	74	76	74		88

CARBON MONOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60
2	60	60	60	60	60	60	60	60	50	60	50	50	(CA)	(CA)	50	50	50	50	50	50	50	50	50	50	51	60
3	50	50	50	50	50	50	50	60	60	50	50	50	60	60	50	50	60	60	60	60	60	60	60	60	52	60
4	60	60	60	60	60	60	60	60	60	60	60	50	50	50	50	50	50	50	50	50	50	50	50	50	51	60
5	50	50	50	50	50	50	50	50	50	60	50	60	60	60	50	50	50	50	50	50	50	50	50	60	48	60
6	60	60	60	60	60	60	60	60	50	50	60	60	50	60	50	60	60	60	60	60	50	60	50	50	54	60
7	50	60	60	60	60	50	60	60	60	50	30	30	30	30	30	30	50	50	50	50	50	50	50	50	46	60
8	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	57	60
9	60	60	60	60	60	50	50	50	50	50	60	60	50	60	50	60	60	60	60	60	50	50	50	60	53	60
10	60	60	50	50	50	50	50	50	50	60	60	60	50	50	50	60	60	60	60	60	50	60	50	50	51	60
11	50	50	50	50	50	50	50	50	60	50	(CA)	(CA)	(CA)	(CA)	30	30	30	30	30	30	30	30	30	30	41	60
12	30	30	30	30	30	30	30	30	30	30	30	30	30	30	50	30	30	50	50	50	50	50	50	50	38	50
13	50	50	50	50	50	50	50	50	50	50	50	50	30	50	50	50	30	50	30	50	30	50	50	50	44	50
14	50	50	50	50	50	50	50	50	50	(CA)	20	10	10	10	10	10	10	10	20	20	20	20	20	20	28	50
15	20	20	20	20	10	10	10	10	20	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	14	20
16	20	20	10	10	10	10	10	30	10	10	10	10	10	10	10	10	10	10	10	20	10	20	20	10	15	30
17	10	20	10	10	20	10	20	20	20	10	10	10	20	20	10	0	0	0	0	10	10	10	10	10	13	20
18	20	20	20	20	20	20	20	20	20	20	10	10	10	10	10	10	10	10	10	10	10	10	10	0	16	20
19	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	23	20
20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	23	20
21	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	23	20
22	20	20	20	20	20	20	20	20	20	20	20	20	20	(IM)	(IM)	20	20	20	20	20	20	20	20	10	22	20
23	20	10	10	10	20	10	10	10	10	10	10	10	10	20	20	20	20	20	20	20	10	10	10	10	16	20
24	20	20	10	10	10	10	10	10	10	10	10	20	20	20	20	20	20	20	20	20	20	20	20	20	19	20
25	20	20	20	20	20	20	20	20	20	20	20	20	20	20	30	20	20	20	20	30	20	30	20	20	24	30
26	30	30	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	24	30
27	20	20	20	20	20	10	10	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	22	20
28	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	23	20
29	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	23	20
30	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	30	20	20	20	20	20	20	30	20	24	30
AV	36	36	34	34	35	33	34	35	34	33	32	32	30	32	32	32	32	33	33	34	31	33	33	32	33	
PK	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60		60

SULFUR DIOXIDE
(UG/M3)

CB-TRACT
TRAILER AB23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
2	0	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	(CA)	3	3	3	3	0	0	0	0	0	0	0	0	1	3
3	0	0	0	0	0	0	0	3	0	0	0	3	3	5	3	0	3	3	0	3	0	0	0	0	1	5
4	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
5	3	0	0	0	0	0	0	0	0	0	3	3	3	0	3	3	3	0	0	0	0	0	0	0	1	3
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	(CA)	(CA)	(CA)	0	3	3	0	0	3	3	0	0	0	0	0	3
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3
17	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
23	3	3	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
24	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PK	3	3	3	0	0	0	0	3	3	3	3	3	3	5	3	3	3	3	3	3	0	0	0	3		5

HYDROGEN SULFIDE
(UG/M3)

CB-TRACT
TRAILER AB23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL.STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	(CA)	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	(CA)	(CA)	4	3	3	1	1	1	1	1	1	1	1	0	1	4
15	1	1	1	3	3	3	1	1	3	1	1	1	1	1	1	1	0	0	1	0	0	0	0	0	1	3
16	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PK	1	1	1	3	3	3	1	1	3	1	1	1	4	3	3	1	1	1	1	1	1	1	1	0		4

PARTICULATE DATA
UG/M3

C-B TRACT
NOV 1983
OCCIDENTAL OIL SHALE, INC.

			STATION		
DAY	AB20	AB23	AB26	AD42	AD56
2	( )	18.5	( )	( )	( )
6	( )	9.3	( )	( )	( )
10	( )	1.7	( )	( )	( )
14	( )	3	( )	( )	( )
18	( )	1	( )	( )	( )
22	( )	0.8	( )	( )	( )
26	( )	2.2	( )	( )	( )
30	( )	3.4	( )	( )	( )
AVE	( )	4.99	( )	( )	( )
GM	( )	2.92	( )	( )	( )
PEAK	( )	18.5	( )	( )	( )

WIND SPEED @ 10M
METERS/SEC

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	1	(CM)	1	3	1	2	2	1	3	4	4	4	4	4	3	2	1	2	0	1	1	1	1	2	4
2	1	1	1	0	1	0	1	1	1	1	2	2	2	5	2	2	2	1	1	1	1	0	0	0	1	5
3	(CM)	(CM)	1	(CM)	0	0	0	0	1	1	1	1	2	3	2	1	3	1	(CM)	1	0	1	1	0	1	3
4	0	0	1	1	1	1	0	0	(CM)	1	1	1	5	4	4	4	4	3	2	0	2	3	4	2	2	5
5	2	1	2	2	0	0	1	2	1	4	6	4	3	3	4	5	4	2	1	1	1	2	2	1	2	6
6	1	0	(CM)	0	1	0	1	1	1	0	1	2	2	1	2	4	4	4	4	3	1	3	2	2	2	4
7	1	1	1	2	1	1	4	6	6	8	5	7	9	8	6	7	7	5	5	3	4	4	5	4	5	9
8	3	2	4	3	2	3	3	4	2	2	3	2	3	3	4	5	3	2	1	1	2	2	1	2	3	5
9	2	1	1	1	1	1	2	1	1	1	1	1	1	0	2	2	2	2	2	2	2	1	2	2	1	2
10	2	2	2	2	3	1	1	2	1	0	1	1	1	1	2	1	1	2	1	2	2	2	2	2	2	3
11	1	1	3	3	3	2	1	2	1	3	4	3	8	8	8	8	8	5	2	0	2	1	1	1	3	8
12	1	0	0	1	1	1	0	1	0	1	1	0	1	2	4	4	4	4	3	4	3	3	3	4	2	4
13	4	6	8	9	10	10	7	5	1	1	2	2	1	1	2	4	1	2	3	2	1	2	1	5	4	10
14	3	5	4	5	6	3	2	2	2	4	4	4	3	2	2	2	2	1	1	2	2	2	0	1	3	6
15	0	1	1	0	1	2	2	2	1	2	3	3	2	3	4	3	3	2	2	2	2	2	2	2	2	4
16	2	1	2	2	1	1	2	2	1	2	3	3	8	6	7	7	2	4	4	4	3	1	1	2	3	8
17	2	0	1	2	0	3	2	(CM)	7	8	9	10	8	8	5	5	5	4	3	3	1	2	1	1	4	10
18	1	2	1	1	1	1	(CM)	(CM)	(CM)	(CM)	2	4	4	3	4	3	4	4	4	3	4	3	4	4	3	4
19	4	4	3	2	1	1	1	1	1	0	1	1	1	1	2	4	4	4	5	6	4	4	4	4	3	6
20	5	3	3	2	2	4	5	4	3	5	6	6	8	8	7	6	6	6	4	4	4	3	4	4	5	8
21	3	4	1	0	1	1	0	1	2	4	3	4	3	3	4	6	6	3	2	2	2	2	3	2	3	6
22	2	2	2	1	2	3	3	4	2	2	2	2	2	2	1	3	2	1	1	1	2	2	0	1	2	4
23	1	0	1	1	1	0	0	0	0	1	1	2	2	3	4	4	4	3	4	4	4	4	4	4	2	4
24	4	4	5	5	4	3	2	3	3	5	5	6	6	6	4	4	3	2	2	5	8	4	3	3	4	8
25	3	3	3	1	2	6	3	4	1	1	0	1	4	6	7	7	4	2	1	2	1	2	0	2	3	7
26	2	2	6	6	7	8	8	6	6	6	5	5	6	7	6	5	5	4	3	3	3	4	4	3	5	8
27	3	3	2	2	2	2	2	2	3	3	4	5	5	4	3	3	2	1	1	1	1	1	0	1	2	5
28	0	0	0	0	0	0	0	0	0	0	0	0	2	4	4	4	4	4	4	4	4	4	4	5	2	5
29	6	5	5	6	5	4	2	1	0	3	5	5	4	4	2	3	3	4	1	1	1	1	1	1	3	6
30	1	1	0	1	1	1	0	1	1	3	4	4	4	4	4	2	6	2	2	2	2	2	1	1	2	6
AV	2	2	2	2	2	2	2	2	2	3	3	3	4	4	4	4	4	3	2	2	2	2	2	2	3	
PK	6	6	8	9	10	10	8	6	7	8	9	10	9	8	8	8	8	6	5	6	8	4	5	5		10

WIND SPEED @ 30M
METERS/SEC

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	1	1	3	5	2	4	3	2	4	4	6	5	5	6	4	4	3	2	1	1	2	1	1	3	6
2	1	1	1	1	1	0	1	1	2	1	2	3	3	7	2	3	3	1	1	1	2	1	0	0	2	7
3	1	0	0	(CM)	(CM)	0	1	0	1	1	1	1	2	4	2	1	3	3	0	(CM)	1	1	0	0	1	4
4	1	(CM)	1	0	1	2	1	1	0	1	1	2	6	6	5	6	5	5	3	1	2	4	5	3	3	6
5	3	0	3	3	1	0	1	2	2	5	8	5	4	4	6	7	6	4	1	0	1	3	2	1	3	8
6	1	0	0	1	0	0	1	1	2	1	2	3	3	2	3	5	6	6	6	5	3	4	4	4	3	6
7	4	3	3	1	1	0	7	8	9	10	8	9	13	10	8	10	10	8	7	4	6	7	7	6	7	13
8	5	4	6	4	3	4	4	4	4	3	4	2	4	4	5	7	4	3	2	2	3	3	2	3	4	7
9	2	2	1	1	1	0	3	1	1	2	1	1	1	0	3	3	3	3	3	3	3	2	2	2	2	3
10	3	4	2	3	4	2	2	3	3	0	1	1	1	1	3	1	2	4	2	3	3	3	3	3	2	4
11	1	2	4	4	4	3	2	3	2	4	5	4	12	11	12	12	11	7	3	1	2	1	2	1	5	12
12	3	1	0	1	2	2	1	2	1	1	1	0	1	3	5	5	6	5	6	6	6	5	5	7	3	7
13	6	9	12	14	14	15	9	8	2	1	3	3	1	2	2	5	2	2	5	4	1	4	2	8	6	15
14	4	7	6	7	8	5	3	3	4	6	5	5	4	3	3	3	3	1	0	2	2	3	1	1	4	8
15	1	1	1	1	2	3	3	3	2	3	4	4	3	4	4	4	5	3	3	3	2	2	3	4	3	5
16	3	1	3	1	1	2	3	3	3	3	4	4	11	8	9	10	4	6	8	7	6	4	1	2	4	11
17	3	1	2	3	1	4	2	0	11	12	13	13	12	10	7	8	7	5	4	4	2	3	3	1	5	13
18	2	4	1	1	1	2	(CM)	(CM)	(CM)	4	4	4	6	4	5	4	5	5	6	5	5	4	5	5	4	6
19	6	6	4	3	2	1	2	0	1	0	1	1	1	1	3	5	5	5	7	9	5	5	6	5	4	9
20	7	4	4	3	3	5	7	6	5	7	8	9	11	10	9	8	8	8	5	5	6	4	7	6	6	11
21	4	5	2	1	1	2	1	2	3	6	4	6	4	4	6	8	8	4	4	3	3	4	4	3	4	8
22	3	2	3	2	3	4	4	5	3	3	2	3	3	2	2	4	2	2	2	1	2	1	0	1	2	5
23	1	0	1	1	1	0	0	(CM)	(CM)	1	1	2	3	4	5	6	5	5	6	7	6	6	7	6	3	7
24	6	6	8	7	5	4	3	4	4	7	7	8	8	8	5	5	4	3	3	8	12	5	4	4	6	12
25	4	4	5	1	4	8	4	6	2	1	1	1	6	8	9	9	5	4	0	3	1	3	1	4	4	9
26	3	4	9	8	9	12	12	9	8	8	8	7	8	9	9	7	7	4	4	5	4	6	5	5	7	12
27	4	4	3	4	3	3	3	4	4	4	6	6	6	5	4	4	2	2	1	2	1	1	0	2	3	6
28	1	0	1	1	1	1	0	0	1	0	0	1	3	5	5	5	5	6	6	7	6	7	5	7	3	7
29	9	8	7	8	7	6	3	0	1	4	7	8	6	5	3	5	5	5	2	3	3	2	1	3	5	9
30	1	1	(CM)	0	2	2	1	2	2	4	5	4	5	6	5	3	8	4	3	3	2	3	2	1	3	8
AV	3	3	3	3	3	3	3	3	3	4	4	4	5	5	5	6	5	4	3	4	3	3	3	3	4	
PK	9	9	12	14	14	15	12	9	11	12	13	13	13	11	12	12	11	8	8	9	12	7	7	8		15

WIND SPEED @ 60M
METERS/SEC

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	1	1	2	4	7	3	5	4	3	5	5	6	6	6	6	4	4	3	2	1	1	2	1	1	3	7
2	1	2	2	3	1	2	2	1	3	2	3	3	3	8	2	4	3	0	0	0	2	1	1	1	2	8
3	1	0	0	0	0	1	0	0	0	1	2	1	2	4	3	2	4	2	1	1	1	2	1	1	1	4
4	1	2	1	1	2	3	1	2	1	1	2	2	7	6	5	6	6	5	5	3	3	3	5	4	3	7
5	3	0	3	4	2	1	2	0	2	6	8	6	5	4	7	8	7	4	1	1	1	4	3	1	4	8
6	1	1	1	2	1	0	1	2	2	1	2	3	3	2	4	6	7	7	8	7	4	6	7	5	3	8
7	5	5	6	1	2	3	8	10	11	12	8	10	13	11	9	12	12	9	8	6	8	8	8	8	8	13
8	6	4	7	5	4	5	4	6	4	4	4	3	4	4	6	8	5	4	2	3	4	4	3	3	4	8
9	3	3	2	2	1	0	3	2	1	3	1	0	2	1	3	3	4	3	3	3	3	2	2	3	2	4
10	4	4	1	3	4	1	2	2	3	1	1	1	1	2	3	2	3	4	2	3	4	4	4	4	3	4
11	2	3	6	4	4	3	3	4	2	4	6	5	13	12	13	13	13	8	4	1	2	1	2	2	6	13
12	4	2	1	1	2	4	2	2	2	1	1	1	1	3	6	7	7	7	8	8	8	7	7	8	4	8
13	8	12	14	15	16	17	11	9	3	2	3	3	1	2	3	5	2	2	6	6	2	5	4	9	7	17
14	6	8	8	8	9	6	4	4	5	6	6	6	5	3	3	4	4	2	1	1	1	3	2	2	4	9
15	2	1	2	2	1	3	3	3	3	4	5	4	3	4	5	4	6	3	3	2	1	2	4	4	3	6
16	4	0	2	0	2	1	4	4	4	4	4	4	12	9	9	11	4	7	9	9	8	6	1	3	5	12
17	4	1	3	4	2	5	2	1	13	14	15	15	13	11	8	10	9	7	4	5	3	3	4	2	7	15
18	4	5	(CM)	1	1	4	(CM)	(CM)	(CM)	(CM)	(CM)	(CM)	(CM)	4	6	5	5	6	7	6	6	5	6	6	5	7
19	7	7	5	4	2	2	2	1	1	0	1	1	1	2	3	5	6	6	8	11	6	6	7	6	4	11
20	7	5	4	3	4	6	8	6	6	8	8	10	13	12	11	9	10	9	6	6	7	5	8	7	7	13
21	4	6	0	1	1	3	2	3	4	7	5	7	4	5	7	9	10	5	4	4	3	4	5	4	5	10
22	3	3	4	3	4	5	4	5	3	3	2	3	3	2	2	4	3	2	2	1	2	0	0	(CM)	3	5
23	0	1	0	0	1	(CM)	(CM)	(CM)	(CM)	1	2	3	4	4	6	7	6	7	8	8	8	8	8	7	4	8
24	7	7	9	8	6	4	4	5	5	8	8	9	9	9	6	6	5	4	4	9	13	6	4	4	7	13
25	4	5	6	2	4	9	5	7	3	2	2	1	7	8	10	11	6	4	0	3	1	2	1	4	5	11
26	4	4	9	9	10	13	12	9	9	9	8	8	9	11	9	8	8	6	5	5	5	7	6	5	8	13
27	5	5	4	4	4	4	4	4	4	5	6	8	7	5	4	4	3	2	2	2	1	1	1	2	4	8
28	2	1	1	1	1	1	0	1	1	1	1	1	3	5	6	5	7	8	7	8	8	8	7	9	4	9
29	11	10	8	10	8	8	4	1	2	5	8	8	6	6	4	5	5	6	3	4	4	2	0	2	6	11
30	1	2	1	1	2	3	2	2	4	5	6	5	6	7	6	4	9	4	4	3	2	4	2	2	4	9
AV	4	4	4	4	4	4	4	4	4	4	5	5	6	6	6	6	6	5	4	4	4	4	4	4	4	
PK	11	12	14	15	16	17	12	10	13	14	15	15	13	12	13	13	13	9	9	11	13	8	8	9		17

WIND DIRECTION @ 10M
DEGREES

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	214	188	(CM)	155	169	163	168	113	109	204	223	228	216	220	207	207	213	217	207	156	191	145	221	220	191
2	197	213	206	192	240	341	203	125	270	7	345	330	223	197	286	324	305	192	221	210	210	294	117	225	238
3	(CM)	(CM)	215	(CM)	192	215	354	225	107	45	76	23	234	244	205	247	342	22	(CM)	229	294	230	148	22	241
4	207	225	207	193	164	175	236	210	(CM)	5	345	253	215	216	213	218	214	194	203	145	140	146	152	98	196
5	79	140	169	145	94	66	86	77	77	189	218	214	208	204	218	222	239	255	283	215	235	261	232	213	194
6	207	143	(CM)	202	215	228	267	139	94	39	334	299	308	245	231	218	212	196	203	203	163	194	193	182	209
7	168	131	184	49	99	60	186	190	195	194	194	191	201	209	205	207	214	207	203	189	178	198	208	213	187
8	223	228	309	341	294	299	312	342	331	337	316	304	311	318	336	336	350	312	266	292	354	13	13	13	320
9	14	14	14	13	13	12	14	12	74	95	68	344	270	261	210	175	172	154	120	114	109	112	112	127	71
10	115	140	97	172	166	118	188	165	158	109	60	31	310	205	222	211	190	146	143	133	123	147	139	123	147
11	117	112	169	161	134	109	176	191	96	194	202	194	213	218	217	220	222	241	289	19	173	197	240	225	189
12	246	9	172	184	223	278	189	59	5	240	303	52	23	232	215	214	210	204	207	209	202	200	194	193	216
13	191	205	216	217	213	220	279	255	300	274	313	317	6	341	351	297	268	204	202	198	113	188	112	243	246
14	269	280	255	257	261	266	266	270	287	289	286	303	320	338	310	298	307	323	201	207	210	228	145	201	270
15	193	143	133	180	148	142	133	133	109	174	215	211	207	226	222	191	168	136	138	126	127	150	134	138	160
16	167	136	127	117	209	137	124	107	157	204	220	242	219	230	222	219	215	223	217	215	211	210	84	134	185
17	168	115	126	167	94	147	86	(CM)	208	209	201	206	202	195	199	206	201	203	224	270	237	141	122	122	178
18	152	199	83	135	115	340	(CM)	(CM)	(CM)	(CM)	320	335	336	359	4	5	12	349	333	333	333	333	329	330	351
19	334	337	347	(WR)	(WR)	(WR)	(WR)	(WR)	235	277	340	329	349	86	236	224	222	200	216	207	194	186	201	204	247
20	207	197	188	176	198	191	198	201	201	202	209	212	212	198	203	199	191	199	197	194	200	215	209	208	200
21	196	201	45	71	59	210	326	180	184	198	177	172	194	194	229	204	192	168	157	158	123	171	188	186	178
22	155	191	214	240	287	299	299	314	316	300	308	315	311	292	330	329	340	292	256	200	185	232	243	214	275
23	217	120	199	208	199	281	202	130	130	99	210	230	297	224	231	230	225	197	204	207	203	205	207	206	205
24	196	190	189	183	190	170	163	186	189	196	196	191	196	198	171	161	133	160	139	191	184	179	83	130	175
25	84	152	133	112	151	184	130	154	132	118	128	184	186	186	175	183	234	258	55	144	111	164	254	310	157
26	287	284	321	320	327	336	329	332	331	327	339	342	340	340	332	335	341	343	338	338	337	319	310	304	327
27	296	303	308	308	309	306	298	302	324	335	339	347	347	11	0	10	325	358	325	331	267	261	259	210	317
28	209	210	211	207	207	207	209	209	210	107	111	187	218	219	210	214	210	208	205	211	215	219	202	193	203
29	213	209	210	217	210	203	202	87	326	261	244	261	261	249	298	320	320	290	228	215	216	272	39	63	247
30	170	171	270	33	45	45	71	157	167	201	201	200	207	206	203	191	198	197	181	91	102	186	73	117	164
PV	194	182	191	180	186	209	208	166	168	216	259	262	254	233	235	232	234	218	211	196	186	201	175	186	211

WIND DIRECTION @ 30M
DEGREES

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	128	178	165	160	163	157	157	125	117	200	218	223	212	216	204	203	212	213	190	159	145	153	189	183	178
2	180	193	185	159	198	130	171	118	258	331	339	325	219	193	283	320	304	164	219	211	201	337	120	180	209
3	196	11	249	(CM)	(CM)	274	15	343	114	47	75	27	230	240	206	250	341	16	68	(CM)	352	284	184	173	316
4	73	(CM)	166	214	147	149	191	114	132	19	339	246	213	214	209	213	210	190	188	174	155	141	137	107	171
5	91	114	157	149	156	124	119	69	75	186	213	209	207	202	213	217	235	251	301	105	270	266	252	233	188
6	216	63	79	148	174	216	292	183	95	38	329	295	302	237	227	213	208	195	199	199	187	191	190	182	202
7	178	179	188	62	140	155	183	187	190	189	188	186	197	204	202	203	210	203	201	187	174	194	202	210	187
8	218	223	302	335	294	297	308	337	328	333	312	301	306	315	328	330	346	311	296	308	346	355	355	355	317
9	355	354	355	355	354	352	355	355	90	101	75	349	265	238	203	170	163	149	122	121	124	125	119	137	77
10	139	148	101	153	158	117	169	149	151	120	60	39	301	201	216	208	188	143	143	131	122	157	154	140	147
11	143	126	168	159	136	112	173	188	107	191	202	206	211	214	213	221	229	241	278	340	173	191	259	246	193
12	256	320	171	177	240	276	227	51	29	225	298	65	27	256	214	228	211	201	204	209	196	193	191	187	220
13	187	201	211	214	209	216	276	252	290	268	311	315	0	333	348	294	269	212	194	194	153	190	161	237	240
14	266	275	262	256	259	293	287	290	283	284	282	297	315	330	306	295	301	341	156	178	204	226	254	225	274
15	205	129	141	161	139	135	140	136	135	170	210	206	201	220	216	185	161	134	129	128	123	141	132	127	157
16	161	128	120	106	121	125	130	115	162	202	214	235	214	226	218	214	210	221	214	213	212	211	118	145	178
17	173	137	153	169	143	151	94	180	205	207	197	202	199	197	202	212	216	201	217	267	246	132	121	140	182
18	181	199	77	134	129	335	(CM)	(CM)	(CM)	346	320	331	332	355	357	359	8	346	330	328	318	333	325	327	342
19	330	333	338	338	3	8	295	265	251	279	332	317	339	83	233	220	219	195	211	202	191	181	196	199	268
20	202	194	185	174	194	186	192	198	199	198	206	208	208	195	200	195	185	195	193	193	197	210	207	205	197
21	191	195	39	75	72	204	225	183	182	195	175	166	191	189	224	199	187	163	150	163	119	161	188	191	175
22	150	193	221	233	290	296	296	309	312	297	301	312	307	288	325	324	337	297	265	202	154	225	9	212	280
23	212	119	199	210	200	345	289	(CM)	(CM)	109	207	228	290	223	226	226	220	190	198	202	198	200	205	199	211
24	192	187	184	176	187	171	171	186	188	192	192	189	191	193	169	159	129	159	143	187	178	175	86	125	173
25	85	151	132	120	151	178	125	150	138	142	157	180	181	180	169	177	229	251	27	147	107	152	259	311	158
26	287	284	317	317	323	332	325	329	326	323	336	339	337	337	328	332	337	341	335	334	335	315	310	302	324
27	297	301	308	308	308	305	299	301	323	333	336	343	344	6	356	5	324	356	331	338	280	253	165	173	319
28	152	202	199	186	184	143	201	175	200	111	90	188	216	215	205	210	206	204	199	206	211	215	200	187	191
29	208	205	207	213	206	202	208	6	289	259	241	257	258	245	294	315	315	287	231	222	231	281	71	147	244
30	160	172	(CM)	42	119	155	174	164	184	195	199	197	202	201	198	187	192	192	176	88	101	178	85	135	166
PV	185	181	179	170	175	185	211	173	177	215	253	256	249	229	232	230	232	213	203	190	183	199	175	185	208

WIND DIRECTION @ 60M
DEGREES

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	PREV
1	354	178	180	165	163	158	157	145	138	198	216	219	209	215	202	201	211	216	199	193	126	159	188	176	184
2	188	176	163	162	153	143	141	142	245	306	337	328	217	192	282	322	310	90	186	240	207	255	186	176	204
3	202	209	259	293	294	252	323	335	59	58	74	31	227	238	206	243	342	16	55	41	35	289	226	227	296
4	151	131	130	174	139	151	182	117	154	65	341	244	210	212	207	209	210	191	187	187	178	155	141	120	169
5	102	293	167	174	184	195	176	9	68	186	210	206	206	203	212	216	234	252	340	75	307	276	274	270	218
6	235	199	153	126	139	148	288	229	101	52	329	297	301	238	226	212	207	199	201	202	197	194	191	188	203
7	185	194	189	183	174	192	185	186	188	187	185	185	195	203	200	202	208	202	201	190	178	193	201	210	192
8	218	223	298	335	307	302	311	339	332	336	315	305	312	320	335	333	346	319	291	303	347	342	326	303	315
9	281	279	267	266	243	248	150	166	136	115	107	0	261	225	199	171	162	159	141	148	152	151	145	159	183
10	165	162	113	155	166	144	186	160	156	164	78	56	222	205	210	202	191	151	158	141	139	175	172	164	162
11	170	150	175	172	149	127	176	184	128	188	195	191	208	211	210	215	217	232	270	308	188	205	269	254	197
12	261	292	280	231	254	272	244	56	41	155	279	75	37	224	210	207	205	202	206	211	200	195	191	188	222
13	188	200	211	212	208	215	276	252	284	268	310	312	354	332	347	292	269	212	197	197	184	197	183	235	241
14	262	277	266	259	261	295	289	292	284	286	284	299	317	330	308	297	303	355	94	169	205	235	264	250	280
15	231	152	143	167	148	153	161	151	161	174	208	204	197	218	214	184	163	152	147	149	128	145	144	140	167
16	172	124	116	209	75	127	149	141	170	204	214	232	213	225	218	213	209	219	215	215	213	213	183	165	189
17	181	174	179	173	166	164	115	194	204	203	194	199	197	190	196	201	194	196	213	266	254	135	133	179	187
18	200	202	(CM)	156	175	342	(CM)	(CM)	(CM)	(CM)	(CM)	(CM)	(CM)	356	357	360	9	348	335	333	323	337	330	330	334
19	332	335	341	342	357	12	317	313	270	279	334	316	335	83	233	220	219	195	211	202	192	183	196	199	277
20	203	194	188	180	195	186	192	199	201	197	206	206	207	194	200	194	187	196	194	197	197	210	206	204	197
21	192	194	194	82	104	202	216	191	187	197	179	167	192	191	223	198	188	167	158	175	133	160	190	200	181
22	158	200	225	239	301	301	300	312	312	298	300	314	309	291	324	325	341	315	277	219	148	184	355	(CM)	288
23	229	213	173	214	210	(CM)	(CM)	(CM)	(CM)	160	210	229	289	225	226	226	220	194	201	205	202	204	209	201	211
24	194	189	186	178	189	179	183	188	192	194	193	190	191	192	172	163	141	169	159	188	178	176	101	133	177
25	97	159	141	147	158	178	134	155	153	163	172	182	181	178	169	176	228	246	287	163	120	155	258	317	171
26	294	289	320	320	326	335	327	331	330	326	339	343	339	339	331	337	341	345	341	341	341	322	317	309	329
27	306	307	320	318	318	321	315	317	332	340	339	345	345	6	356	7	330	0	345	351	347	298	254	172	330
28	150	207	212	199	202	172	168	172	208	158	96	180	214	215	204	208	204	204	197	205	211	215	202	188	193
29	207	206	207	213	208	204	214	285	274	262	244	259	260	249	297	317	315	289	239	240	255	276	0	142	250
30	151	181	172	191	139	177	191	187	194	195	199	198	201	200	198	187	191	189	178	100	118	176	104	156	176
PV	201	203	195	197	189	195	205	199	191	203	239	247	240	226	230	226	229	212	207	200	185	203	204	197	215

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
10 METER LEVEL

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																							VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	214	188	***	155	169	163	168	113	109	204	223	228	216	220	207	207	213	217	207	156	191	145	221	220	200	1.8
2	197	213	206	192	240	341	203	125	270	7	345	330	223	197	286	324	305	192	221	210	210	294	117	225	243	0.7
3	***	***	215	***	192	215	354	225	107	45	76	23	234	244	205	247	342	22	***	229	294	230	148	22	252	0.3
4	207	225	207	193	164	175	236	210	***	5	345	253	215	216	213	218	214	194	203	145	140	146	152	98	197	1.5
5	79	140	169	145	94	66	86	77	77	189	218	214	208	204	218	222	239	255	283	215	235	261	232	213	208	1.6
6	207	143	***	202	215	228	267	139	94	39	334	299	308	245	231	218	212	196	203	203	163	194	193	182	212	1.3
7	168	131	184	49	99	60	186	190	195	194	194	191	201	209	205	207	214	207	203	189	178	198	208	213	198	4.3
8	223	228	309	341	294	299	312	342	331	337	316	304	311	318	336	336	350	312	266	292	354	13	13	13	322	2.2
9	14	14	14	13	13	12	14	12	74	95	68	344	270	261	210	175	172	154	120	114	109	112	112	127	91	0.6
10	115	140	97	172	166	118	188	165	158	109	60	31	310	205	222	211	190	146	143	133	123	147	139	123	148	1.2
11	117	112	169	161	134	109	176	191	96	194	202	194	213	218	217	220	222	241	289	19	173	197	240	225	205	2.7
12	246	9	172	184	223	278	189	59	5	240	303	52	23	232	215	214	210	204	207	209	202	200	194	193	210	1.6
13	191	205	216	217	213	220	279	255	300	274	313	317	6	341	351	297	268	204	202	198	113	188	112	243	231	2.8
14	269	280	255	257	261	266	266	270	287	289	286	303	320	338	310	298	307	323	201	207	210	228	145	201	275	2.2
15	193	143	133	180	148	142	133	133	109	174	215	211	207	226	222	191	168	136	138	126	127	150	134	138	167	1.6
16	167	136	127	117	209	137	124	107	157	204	220	242	219	230	222	219	215	223	217	215	211	210	84	134	205	2.4
17	168	115	126	167	94	147	86	***	208	209	201	206	202	195	199	206	201	203	224	270	237	141	122	122	198	3.5
18	152	199	83	135	115	340	***	***	***	***	320	335	336	359	4	5	12	349	333	333	333	333	329	330	345	2.2
19	334	337	347	***	***	***	***	***	235	277	340	329	349	86	236	224	222	200	216	207	194	186	201	204	226	1.7
20	207	197	188	176	198	191	198	201	201	202	209	212	212	198	203	199	191	199	197	194	200	215	209	208	202	4.6
21	196	201	45	71	59	210	326	180	184	198	177	172	194	194	229	204	192	168	157	158	123	171	188	186	188	2.2
22	155	191	214	240	287	299	299	314	316	300	308	315	311	292	330	329	340	292	256	200	185	232	243	214	286	1.3
23	217	120	199	208	199	281	202	130	130	99	210	230	297	224	231	230	225	197	204	207	203	205	207	206	214	2.0
24	196	190	189	183	190	170	163	186	189	196	196	191	196	198	171	161	133	160	139	191	184	179	83	130	181	3.7
25	84	152	133	112	151	184	130	154	132	118	128	184	186	186	175	183	234	258	55	144	111	164	254	310	169	2.0
26	287	284	321	320	327	336	329	332	331	327	339	342	340	340	332	335	341	343	338	338	337	319	310	304	330	4.9
27	296	303	308	308	309	306	298	302	324	335	339	347	347	11	0	10	325	358	325	331	267	261	259	210	329	2.1
28	209	210	211	207	207	207	209	209	210	107	111	187	218	219	210	214	210	208	205	211	215	219	202	193	209	2.0
29	213	209	210	217	210	203	202	87	326	261	244	261	261	249	298	320	320	290	228	215	216	272	39	63	240	2.3
30	170	171	270	33	45	45	71	157	167	201	201	200	207	206	203	191	198	197	181	91	102	186	73	117	186	1.5
VD	203	205	214	209	215	224	234	202	214	219	236	241	233	223	225	226	224	217	211	204	189	200	189	198	218	
VV	1.1	1.1	1.0	1.0	1.1	0.9	0.6	0.5	0.6	1.4	1.6	1.7	2.3	2.6	2.5	2.5	2.2	1.7	1.6	1.5	1.4	1.4	1.0	1.2		1.4

TOTAL NUMBER OF OBSERVATIONS = 703

NOTE: **** = MISSING DATA

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
30 METER LEVEL

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	128	178	165	160	163	157	157	125	117	200	218	223	212	216	204	203	212	213	190	159	145	153	189	183	190	2.6
2	180	193	185	159	198	130	171	118	258	331	339	325	219	193	283	320	304	164	219	211	201	337	120	180	235	0.8
3	196	11	249	***	***	274	15	343	114	47	75	27	230	240	206	250	341	16	68	***	352	284	184	173	290	0.3
4	73	***	166	214	147	149	191	114	132	19	339	246	213	214	209	213	210	190	188	174	155	141	137	107	186	2.1
5	91	114	157	149	156	124	119	69	75	186	213	209	207	202	213	217	235	251	301	105	270	266	252	233	206	2.2
6	216	63	79	148	174	216	292	183	95	38	329	295	302	237	227	213	208	195	199	199	187	191	190	182	207	2.0
7	178	179	188	62	140	155	183	187	190	189	188	186	197	204	202	203	210	203	201	187	174	194	202	210	194	6.5
8	218	223	302	335	294	297	308	337	328	333	312	301	306	315	328	330	346	311	296	308	346	355	355	355	316	3.1
9	355	354	355	355	354	352	355	355	90	101	75	349	265	238	203	170	163	149	122	121	124	125	119	137	110	0.6
10	139	148	101	153	158	117	169	149	151	120	60	39	301	201	216	208	188	143	143	131	122	157	154	140	148	1.9
11	143	126	168	159	136	112	173	188	107	191	202	206	211	214	213	221	229	241	278	340	173	191	259	246	206	3.8
12	256	320	171	177	240	276	227	51	29	225	298	65	27	256	214	228	211	201	204	209	196	193	191	187	212	2.5
13	187	201	211	214	209	216	276	252	290	268	311	315	0	333	348	294	269	212	194	194	153	190	161	237	226	4.4
14	266	275	262	256	259	293	287	290	283	284	282	297	315	330	306	295	301	341	156	178	204	226	254	225	278	3.3
15	205	129	141	161	139	135	140	136	135	170	210	206	201	220	216	185	161	134	129	128	123	141	132	127	162	2.3
16	161	128	120	106	121	125	130	115	162	202	214	235	214	226	218	214	210	221	214	213	212	211	118	145	202	3.7
17	173	137	153	169	143	151	94	180	205	207	197	202	199	197	202	212	216	201	217	267	246	132	121	140	198	4.9
18	181	199	77	134	129	335	***	***	***	346	320	331	332	355	357	359	8	346	330	328	318	333	325	327	337	3.1
19	330	333	338	338	3	8	295	265	251	279	332	317	339	83	233	220	219	195	211	202	191	181	196	199	232	1.8
20	202	194	185	174	194	186	192	198	199	198	206	208	208	195	200	195	185	195	193	193	197	210	207	205	198	6.4
21	191	195	39	75	72	204	225	183	182	195	175	166	191	189	224	199	187	163	150	163	119	161	188	191	183	3.3
22	150	193	221	233	290	296	296	309	312	297	301	312	307	288	325	324	337	297	265	202	154	225	9	212	288	1.7
23	212	119	199	210	200	345	289	***	***	109	207	228	290	223	226	226	220	190	198	202	198	200	205	199	210	3.1
24	192	187	184	176	187	171	171	186	188	192	192	189	191	193	169	159	129	159	143	187	178	175	86	125	177	5.3
25	85	151	132	120	151	178	125	150	138	142	157	180	181	180	169	177	229	251	27	147	107	152	259	311	166	3.0
26	287	284	317	317	323	332	325	329	326	323	336	339	337	337	328	332	337	341	335	334	335	315	310	302	327	7.0
27	297	301	308	308	308	305	299	301	323	333	336	343	344	6	356	5	324	356	331	338	280	253	165	173	327	2.8
28	152	202	199	186	184	143	201	175	200	111	90	188	216	215	205	210	206	204	199	206	211	215	200	187	203	3.1
29	208	205	207	213	206	202	208	6	289	259	241	257	258	245	294	315	315	287	231	222	231	281	71	147	236	3.6
30	160	172	***	42	119	155	174	164	184	195	199	197	202	201	198	187	192	192	176	88	101	178	85	135	181	2.6
VD	199	207	210	210	207	217	235	210	210	219	232	235	228	220	222	224	222	212	205	200	190	197	188	194	214	
VV	1.7	1.7	1.4	1.4	1.5	1.3	1.0	0.8	1.1	1.9	2.2	2.3	3.3	3.5	3.5	3.6	3.2	2.5	2.3	2.4	2.1	2.1	1.6	1.9		2.0

TOTAL NUMBER OF OBSERVATIONS = 710

NOTE: **** = MISSING DATA

WIND DIRECTION AND
VECTOR AVERAGE VELOCITY (DEG & MPS)
60 METER LEVEL

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								VECTOR	
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	DIR	VEL
1	354	178	180	165	163	158	157	145	138	198	216	219	209	215	202	201	211	216	199	193	126	159	188	176	190	3.1
2	188	176	163	162	153	143	141	142	245	306	337	328	217	192	282	322	310	90	186	240	207	255	186	176	220	0.9
3	202	209	259	293	294	252	323	335	59	58	74	31	227	238	206	243	342	16	55	41	35	289	226	227	280	0.4
4	151	131	130	174	139	151	182	117	154	65	341	244	210	212	207	209	210	191	187	187	178	155	141	120	183	2.6
5	102	293	167	174	184	195	176	9	68	186	210	206	206	203	212	216	234	252	340	75	307	276	274	270	211	2.6
6	235	199	153	126	139	148	288	229	101	52	329	297	301	238	226	212	207	199	201	202	197	194	191	188	205	2.7
7	185	194	189	183	174	192	185	186	188	187	185	185	195	203	200	202	208	202	201	190	178	193	201	210	194	8.0
8	218	223	298	335	307	302	311	339	332	336	315	305	312	320	335	333	346	319	291	303	347	342	326	303	316	3.7
9	281	279	267	266	243	248	150	166	136	115	107	0	261	225	199	171	162	159	141	148	152	151	145	159	175	1.4
10	165	162	113	155	166	144	186	160	156	164	78	56	222	205	210	202	191	151	158	141	139	175	172	164	163	2.4
11	170	150	175	172	149	127	176	184	128	188	195	191	208	211	210	215	217	232	270	308	188	205	269	254	204	4.8
12	261	292	280	231	254	272	244	56	41	155	279	75	37	224	210	207	205	202	206	211	200	195	191	188	210	3.3
13	188	200	211	212	208	215	276	252	284	268	310	312	354	332	347	292	269	212	197	197	184	197	183	235	225	5.3
14	262	277	266	259	261	295	289	292	284	286	284	299	317	330	308	297	303	355	94	169	205	235	264	250	281	3.9
15	231	152	143	167	148	153	161	151	161	174	208	204	197	218	214	184	163	152	147	149	128	145	144	140	172	2.7
16	172	124	116	209	75	127	149	141	170	204	214	232	213	225	218	213	209	219	215	215	213	213	183	165	206	4.5
17	181	174	179	173	166	164	115	194	204	203	194	199	197	190	196	201	194	196	213	266	254	135	133	179	195	6.1
18	200	202	***	156	175	342	***	***	***	***	***	***	***	356	357	360	9	348	335	333	323	337	330	330	337	3.5
19	332	335	341	342	357	12	317	313	270	279	334	316	335	83	233	220	219	195	211	202	192	183	196	199	233	1.9
20	203	194	188	180	195	186	192	199	201	197	206	206	207	194	200	194	187	196	194	197	197	210	206	204	198	7.4
21	192	194	194	82	104	202	216	191	187	197	179	167	192	191	223	198	188	167	158	175	133	160	190	200	186	4.2
22	158	200	225	239	301	301	300	312	312	298	300	314	309	291	324	325	341	315	277	219	148	184	355	***	292	1.9
23	229	213	173	214	210	***	***	***	***	160	210	229	289	225	226	226	220	194	201	205	202	204	209	201	212	4.2
24	194	189	186	178	189	179	183	188	192	194	193	190	191	192	172	163	141	169	159	188	178	176	101	133	181	6.4
25	97	159	141	147	158	178	134	155	153	163	172	182	181	178	169	176	228	246	287	163	120	155	258	317	170	3.7
26	294	289	320	320	326	335	327	331	330	326	339	343	339	339	331	337	341	345	341	341	341	322	317	309	330	7.7
27	306	307	320	318	318	321	315	317	332	340	339	345	345	6	356	7	330	0	345	351	347	298	254	172	334	3.4
28	150	207	212	199	202	172	168	172	208	158	96	180	214	215	204	208	204	204	197	205	211	215	202	188	202	3.8
29	207	206	207	213	208	204	214	285	274	262	244	259	260	249	297	317	315	289	239	240	255	276	0	142	239	4.4
30	151	181	172	191	139	177	191	187	194	195	199	198	201	200	198	187	191	189	178	100	118	176	104	156	185	3.3
VD	207	211	213	213	208	218	221	211	211	212	224	228	222	218	220	219	217	212	206	205	196	203	199	200	213	
VV	2.4	2.5	2.1	1.9	1.9	1.8	1.6	1.4	1.6	2.4	2.5	2.6	3.8	3.8	3.8	3.9	3.7	3.0	2.8	2.9	2.6	2.6	2.3	2.7		2.6

TOTAL NUMBER OF OBSERVATIONS = 707

NOTE: **** = MISSING DATA

SIGMA HORIZ. WIND DIR. @ 10M
DEGREES

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	6	13	(CM)	8	18	14	7	11	20	14	14	14	14	15	14	12	8	3	4	18	13	9	6	14	12	20
2	3	12	14	17	8	9	5	12	19	16	9	14	25	11	16	8	7	9	10	6	6	8	12	9	11	25
3	(CM)	(CM)	12	(CM)	9	9	9	7	12	14	31	21	34	16	23	19	5	8	(CM)	5	11	10	7	1	13	34
4	9	11	5	5	9	8	11	22	(CM)	12	15	32	13	14	12	9	7	4	14	18	5	3	6	15	11	32
5	9	20	6	14	16	28	13	10	10	14	9	12	12	13	12	10	9	12	13	10	7	5	3	6	11	28
6	3	7	(CM)	12	4	14	13	11	7	21	25	27	34	24	24	11	8	6	6	8	18	8	10	13	14	34
7	32	17	27	22	41	27	10	9	10	9	12	12	10	11	12	12	9	8	8	8	6	8	9	9	14	41
8	9	10	9	10	8	8	10	8	10	8	8	8	8	8	7	8	8	7	6	11	7	0	0	0	7	11
9	0	0	0	0	0	0	0	0	6	9	12	8	15	19	11	8	5	3	4	3	7	6	6	5	5	19
10	6	5	7	7	5	6	7	5	10	12	19	10	7	24	13	17	15	6	12	8	9	13	14	11	10	24
11	20	21	14	17	13	19	30	27	34	27	16	23	13	11	10	8	8	12	13	17	9	25	8	9	17	34
12	9	8	8	8	6	13	10	7	11	8	14	34	22	17	10	9	9	7	8	6	7	8	10	7	11	34
13	8	8	9	8	9	8	10	11	20	27	30	17	34	14	15	12	10	7	6	12	19	11	17	11	14	34
14	16	11	2	4	6	0	0	6	10	11	12	15	13	17	17	16	7	6	8	3	6	9	8	8	9	17
15	9	7	15	15	8	5	4	5	7	13	12	14	17	13	10	9	6	4	4	4	3	4	5	6	8	17
16	8	5	5	12	14	18	6	11	18	25	24	28	13	10	10	8	28	8	7	7	8	18	21	9	13	28
17	11	21	31	12	31	10	20	(CM)	11	9	9	10	11	13	15	15	10	10	11	13	7	4	6	7	13	31
18	16	19	14	5	3	6	(CM)	(CM)	(CM)	(CM)	9	10	9	8	7	5	7	6	5	1	0	0	2	2	7	19
19	6	6	2	(WR)	(WR)	(WR)	(WR)	(WR)	6	31	26	28	25	19	18	12	9	8	10	9	9	12	10	12	14	31
20	10	11	11	14	13	15	10	16	20	13	15	14	10	9	10	9	8	8	12	12	10	14	12	10	12	20
21	16	13	20	18	3	11	12	9	11	10	10	9	12	11	11	10	8	14	8	10	14	13	10	10	11	20
22	8	5	5	11	8	7	7	7	6	13	12	12	12	14	14	9	6	6	5	5	7	7	9	6	8	14
23	5	7	7	5	6	13	13	23	15	15	22	22	17	13	13	10	8	6	7	7	7	6	6	7	11	23
24	7	6	8	7	9	13	16	14	15	12	12	10	10	11	11	11	7	17	25	21	8	22	15	13	13	25
25	14	11	10	30	28	11	14	13	25	11	20	33	16	9	7	8	10	11	5	6	13	6	13	8	14	33
26	6	7	8	9	7	7	7	8	7	8	9	8	8	7	7	7	7	7	9	7	6	6	6	6	7	9
27	6	8	10	8	6	7	6	6	6	7	7	9	10	9	9	9	9	6	3	6	4	1	0	2	6	10
28	0	0	0	0	0	0	0	0	0	11	25	36	12	11	9	9	9	8	9	9	9	8	8	7	8	36
29	9	8	9	9	9	9	14	6	19	10	10	9	12	10	10	9	8	8	8	7	5	8	3	6	9	19
30	8	11	12	3	0	0	10	8	32	13	12	19	14	10	13	29	8	18	18	14	13	16	35	24	14	35
AV	9	10	10	10	10	10	10	10	13	14	15	17	15	13	12	11	9	8	9	9	8	9	9	8	11	
PK	32	21	31	30	41	28	30	27	34	31	31	36	34	24	24	29	28	18	25	21	19	25	35	24		41

SIGMA HORIZ. WIND DIR. @ 30M
DEGREES

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	8	12	34	9	12	12	4	8	18	11	12	12	12	13	11	12	6	3	4	21	10	10	14	16	12	34
2	16	24	14	14	13	12	12	7	14	21	8	12	24	10	15	8	5	12	10	14	9	8	17	12	13	24
3	12	11	31	(CM)	(CM)	9	5	13	14	17	28	22	28	13	22	17	4	4	14	(CM)	9	7	10	12	14	31
4	12	(CM)	12	13	8	12	27	14	12	15	16	26	11	12	11	8	6	3	16	18	11	4	4	11	12	27
5	11	22	6	11	19	40	38	24	10	12	8	10	11	12	10	8	8	11	19	32	23	5	5	9	15	40
6	17	18	11	13	18	13	12	17	7	21	25	23	29	31	20	9	6	5	5	8	23	8	8	11	15	31
7	13	18	19	38	42	49	9	9	9	8	11	11	9	10	11	11	8	7	7	9	5	8	8	8	14	49
8	7	8	8	9	5	6	8	8	9	6	5	5	6	3	0	5	7	6	2	4	7	0	0	0	5	9
9	0	0	0	0	0	0	0	6	10	9	15	14	16	22	10	8	6	4	4	6	19	10	6	7	7	22
10	10	5	7	5	3	6	6	4	5	19	20	13	18	28	11	18	13	7	14	7	8	15	15	9	11	28
11	22	30	15	17	14	22	30	27	34	23	16	21	11	10	9	8	7	11	13	18	14	23	9	12	17	34
12	8	17	22	12	7	10	14	8	16	13	16	34	26	19	9	14	11	7	7	4	6	7	9	6	13	34
13	8	8	8	7	7	7	10	9	19	38	32	17	37	13	15	10	11	8	4	7	22	12	25	10	14	38
14	16	10	9	9	7	6	8	6	9	9	11	12	12	17	15	13	7	9	16	4	5	7	10	10	10	17
15	15	10	12	8	7	5	4	6	9	12	11	10	16	13	8	8	4	4	4	4	4	6	5	5	8	16
16	9	11	5	24	30	12	8	15	16	21	23	23	10	10	9	7	20	7	5	5	5	18	31	12	14	31
17	13	35	28	14	40	9	28	31	9	8	8	9	10	12	15	14	11	8	10	11	9	5	6	14	15	40
18	17	26	22	9	9	5	(CM)	(CM)	(CM)	0	6	9	8	8	6	7	7	6	6	6	7	7	8	8	9	26
19	8	7	6	7	6	11	9	16	15	32	27	33	25	20	18	11	8	8	9	8	8	12	10	11	14	33
20	10	11	11	16	13	13	9	14	21	11	14	13	9	8	9	9	8	8	12	12	11	14	11	10	12	21
21	16	14	17	24	8	11	18	10	11	9	9	9	11	11	10	9	8	14	8	10	14	12	11	10	12	24
22	9	6	4	11	6	6	6	6	6	10	11	11	10	12	14	9	5	8	6	5	3	15	32	15	9	32
23	9	7	9	7	5	14	9	(CM)	(CM)	17	20	20	17	12	12	10	6	5	5	6	6	5	4	7	10	20
24	7	7	7	6	9	13	15	14	14	11	12	9	10	10	12	10	8	17	26	18	8	22	14	12	12	26
25	12	11	9	36	28	11	12	12	33	15	25	31	17	8	7	8	9	10	11	7	12	5	16	7	15	36
26	5	6	7	8	7	6	6	7	7	7	8	7	7	6	6	7	7	6	8	6	5	5	5	5	6	8
27	5	6	7	7	5	6	4	4	6	6	7	8	9	9	8	8	9	6	5	7	11	5	7	5	7	11
28	7	9	3	5	10	6	5	6	6	12	26	37	12	9	7	8	9	7	8	8	8	7	7	7	10	37
29	7	7	8	8	8	9	17	39	19	10	9	8	10	9	10	8	7	6	6	6	7	6	8	4	10	39
30	8	8	(CM)	15	5	10	14	9	28	12	12	18	13	9	13	29	8	20	22	18	20	16	39	40	17	40
AV	11	13	12	12	12	12	12	12	14	14	15	16	15	13	11	10	8	8	10	10	10	9	12	10	12	
PK	22	35	34	38	42	49	38	39	34	38	32	37	37	31	22	29	20	20	26	32	23	23	39	40		49

SIGMA HORIZ. WIND DIR. @ 60M
DEGREES

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																								
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	0	17	15	6	8	9	2	6	14	10	12	10	11	11	10	10	4	3	3	8	6	4	6	4	8	17
2	3	6	8	6	7	6	8	4	11	10	8	10	22	9	13	7	4	8	6	17	7	12	6	5	8	22
3	3	3	4	1	3	7	8	0	2	11	22	20	29	12	18	14	4	4	3	3	5	6	4	4	8	29
4	2	0	4	4	3	3	8	5	5	10	14	25	10	11	10	7	4	3	4	8	8	8	4	8	7	25
5	25	27	4	7	24	36	26	16	6	12	7	9	10	12	8	7	7	11	8	5	8	4	4	3	12	36
6	5	1	3	2	1	2	10	7	7	13	25	21	29	27	15	7	4	4	3	5	11	6	5	7	9	29
7	5	9	8	53	28	27	8	7	8	7	11	10	7	9	10	9	7	5	6	7	5	6	7	6	11	53
8	6	7	7	7	4	7	8	7	8	6	5	6	6	6	6	8	8	7	9	12	8	6	9	10	7	12
9	6	6	6	8	0	0	7	1	4	5	17	19	14	19	9	7	4	3	5	9	10	9	8	6	8	19
10	6	4	10	6	4	8	6	6	3	12	17	10	4	7	10	16	11	6	13	8	9	12	11	9	9	17
11	28	35	12	18	13	28	37	30	30	21	14	20	10	10	8	6	7	10	11	18	12	16	9	9	17	37
12	5	4	4	13	7	7	8	4	8	11	20	24	26	16	7	7	7	5	4	3	4	5	7	5	9	26
13	7	6	7	6	7	6	8	7	17	35	23	17	29	11	13	8	8	5	3	5	15	10	13	9	11	35
14	13	9	8	7	6	5	6	5	7	7	9	11	11	15	14	11	6	3	11	4	4	5	6	3	8	15
15	7	5	6	5	6	5	4	4	7	11	9	10	15	11	7	6	2	6	5	5	5	5	4	5	6	15
16	6	21	7	26	8	19	9	16	12	16	21	22	9	9	8	6	18	5	5	4	4	10	32	10	13	32
17	12	26	24	12	33	7	33	34	7	6	7	8	9	11	14	11	8	6	9	11	7	5	4	12	13	34
18	11	21	(CM)	7	10	5	(CM)	(CM)	(CM)	(CM)	(CM)	(CM)	(CM)	6	6	7	6	6	5	4	6	6	7	7	8	21
19	7	6	6	6	6	5	6	4	4	26	24	24	21	19	17	10	7	7	8	7	7	10	9	10	11	26
20	9	10	11	14	11	12	8	13	16	10	14	13	8	8	9	8	7	7	11	12	9	11	10	10	10	16
21	14	12	22	20	9	12	12	8	8	8	9	7	10	10	9	8	6	10	8	8	13	8	8	8	10	22
22	9	5	3	10	5	4	4	5	4	7	10	9	8	12	12	7	4	6	3	2	2	6	1	(CM)	6	12
23	5	2	1	2	0	(CM)	(CM)	(CM)	(CM)	11	19	18	15	11	10	8	4	2	3	3	4	3	2	4	6	19
24	4	5	6	4	8	11	13	11	10	11	10	8	8	9	10	8	9	14	21	14	7	19	15	11	10	21
25	13	9	9	43	27	9	11	10	34	16	23	27	13	8	5	6	8	8	13	9	12	4	8	5	14	43
26	4	4	6	7	6	5	5	6	5	6	7	6	6	5	5	6	6	5	7	5	4	4	4	3	5	7
27	3	4	6	6	3	4	4	4	5	4	6	7	8	8	6	7	8	4	3	5	3	2	0	6	5	8
28	3	3	1	1	1	1	0	1	4	7	13	20	10	8	6	7	6	5	6	5	6	5	6	6	5	20
29	5	6	7	6	7	7	13	40	11	8	8	7	9	8	9	6	5	4	3	3	2	4	4	5	8	40
30	3	4	3	1	4	6	6	4	16	10	11	17	11	9	12	30	7	21	12	20	23	15	35	39	13	39
AV	8	9	8	10	9	9	10	9	10	11	14	14	13	11	10	9	7	6	7	8	8	8	8	8	9	
PK	28	35	24	53	33	36	37	40	34	35	25	27	29	27	18	30	18	21	21	20	23	19	35	39		53

TEMPERATURE @ 10M
DEGREE C

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	5	6	6	6	7	6	4	4	7	13	14	16	17	16	17	14	12	10	9	8	7	7	6	6	9	17
2	6	6	4	4	4	4	5	6	7	9	10	12	14	14	13	11	10	8	7	6	4	4	3	3	7	14
3	3	3	2	2	2	1	1	2	6	10	13	16	17	17	17	17	13	11	8	7	6	4	3	3	8	17
4	3	2	2	3	3	3	4	4	7	12	15	18	19	19	20	18	16	13	9	8	8	8	8	6	10	20
5	6	6	7	6	6	6	6	7	9	13	14	13	13	13	13	15	14	11	9	8	8	7	5	4	9	15
6	3	2	1	1	1	1	1	2	7	11	14	16	17	18	18	16	13	10	9	8	7	7	7	7	8	18
7	6	6	6	6	6	6	7	8	9	11	14	16	16	17	18	16	14	12	12	11	11	11	7	7	10	18
8	6	6	5	2	0	-1	-1	-2	-2	-1	-1	-1	-1	-1	-2	-3	-4	-4	-5	-5	-5	-6	-6	-6	-2	6
9	-6	-7	-7	-7	-8	-9	-10	-9	-6	-2	2	4	3	5	3	3	0	-3	-4	-4	-3	-3	-3	-3	-3	5
10	-3	-2	-2	-3	-3	-4	-3	-3	0	4	7	9	11	11	8	6	4	3	1	1	0	1	1	0	2	11
11	1	2	3	4	4	4	4	4	5	8	9	8	7	9	9	8	7	6	5	4	4	4	3	3	5	9
12	3	3	2	2	3	3	2	2	2	2	3	6	7	7	8	7	6	4	3	3	3	3	3	4	4	8
13	4	4	5	5	5	6	2	1	2	6	7	8	9	8	7	9	6	3	2	2	2	2	2	3	4	9
14	0	1	-1	-1	-2	-3	-4	-4	-2	1	2	2	3	3	4	4	2	-1	-2	-2	-3	-4	-5	-5	-1	4
15	-6	-6	-6	-6	-4	-4	-3	-3	-2	2	4	6	8	9	6	5	3	2	1	1	1	1	1	-1	0	9
16	-1	0	-1	-1	-2	-1	1	1	3	6	9	10	10	9	10	8	7	4	3	3	3	2	2	2	4	10
17	3	3	2	2	1	2	3	3	5	7	7	7	9	10	8	7	6	6	6	4	1	0	0	0	4	10
18	1	2	1	2	1	-1	-1	-1	-1	-1	-1	0	0	-1	-1	-1	-1	-2	-2	-3	-3	-3	-3	-3	-1	2
19	-3	-4	-4	-4	-5	-6	-7	-7	-4	-1	1	1	1	2	3	1	-1	-2	-2	-2	-2	-2	-2	-2	-2	3
20	-2	-3	-3	-3	-3	-3	-3	-2	-2	-1	2	3	2	2	2	1	0	1	1	1	1	0	1	1	0	3
21	1	1	-1	-1	-1	-1	-2	-2	-2	-1	-2	-1	0	0	-2	-2	-3	-4	-4	-5	-6	-6	-6	-5	-2	1
22	-6	-6	-8	-9	-9	-9	-10	-11	-11	-9	-7	-6	-3	-3	-4	-7	-9	-10	-11	-12	-13	-14	-15	-14	-9	-3
23	-14	-14	-14	-15	-15	-16	-17	-15	-12	-7	-2	-1	-1	-2	-3	-4	-7	-9	-10	-9	-9	-9	-10	-9	-9	-1
24	-8	-8	-8	-7	-7	-7	-7	-6	-4	-3	-2	-2	-2	-1	-1	-1	-2	-2	-1	-1	-2	-1	0	1	-3	1
25	0	1	1	1	1	1	1	1	1	1	2	3	2	1	1	1	-1	-2	-3	-4	-4	-4	-3	-4	0	3
26	-4	-4	-6	-7	-9	-9	-10	-10	-9	-9	-8	-8	-8	-9	-9	-9	-11	-11	-11	-12	-12	-12	-12	-12	-9	-4
27	-12	-12	-12	-12	-11	-11	-11	-11	-9	-8	-7	-4	-5	-4	-6	-7	-8	-8	-9	-9	-9	-9	-9	-9	-9	-4
28	-9	-9	-9	-9	-9	-9	-9	-8	-7	-3	1	1	1	0	-2	-3	-4	-6	-6	-6	-6	-6	-7	-6	-5	1
29	-7	-7	-6	-6	-7	-7	-7	-7	-6	-6	-3	-3	-1	-3	-3	-4	-6	-7	-8	-9	-11	-11	-11	-9	-6	-1
30	-9	-9	-9	-9	-9	-8	-8	-7	-6	-2	-1	2	1	1	1	0	-1	-1	-1	-2	-2	-1	-1	-2	-3	2
AV	-1	-1	-2	-2	-2	-2	-2	-2	0	2	4	5	6	6	5	4	3	1	0	0	-1	-1	-1	-1	1	
PK	6	6	7	6	7	6	7	8	9	13	15	18	19	19	20	18	16	13	12	11	11	11	8	7		20
MN	-14	-14	-14	-15	-15	-16	-17	-15	-12	-9	-8	-8	-8	-9	-9	-9	-11	-11	-11	-12	-13	-14	-15	-14		

MONTHLY MINIMUM = -17

TEMPERATURE @ 30M
DEGREE C

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	6	7	7	7	7	4	6	5	7	12	12	11	13	13	13	11	11	10	9	8	8	8	7	8	9	13
2	7	7	5	5	6	4	4	5	3	4	9	11	12	13	12	8	9	6	7	6	7	5	4	3	7	13
3	4	3	3	2	2	2	2	3	6	9	8	11	13	13	-2	4	2	8	8	5	5	3	4	3	5	13
4	3	2	3	3	4	4	5	5	7	9	11	11	8	16	17	16	14	13	9	9	8	7	-2	7	8	17
5	7	6	6	6	6	7	6	6	8	9	11	12	12	12	13	12	12	11	8	1	6	7	3	4	8	13
6	4	3	2	2	1	2	2	3	6	11	11	12	14	15	3	1	3	9	4	-2	3	5	1	4	5	15
7	5	7	7	6	5	4	6	6	6	9	13	13	13	14	14	15	14	11	9	11	11	11	7	7	9	15
8	7	7	5	2	0	-1	-1	-2	-2	-2	-2	-1	-1	-1	-2	-3	-4	-4	-5	-5	-5	-6	-6	-6	-2	7
9	-6	-7	-7	-7	-8	-9	-8	-7	-5	-2	2	4	2	4	2	3	0	-3	-3	-3	-3	-3	-2	-2	-3	4
10	-2	-2	-2	-2	-2	-3	-2	-1	1	4	8	8	9	9	6	6	4	3	2	1	1	1	1	1	2	9
11	3	3	3	4	4	5	5	5	6	8	8	8	7	8	8	8	7	7	5	4	4	4	4	4	6	8
12	3	3	3	3	3	3	3	2	2	2	3	6	7	6	7	7	6	5	4	4	4	4	4	4	4	7
13	4	4	6	6	6	6	2	1	3	5	7	7	8	6	6	8	6	4	4	3	3	3	2	4	5	8
14	1	1	0	-1	-2	-3	-4	-3	-2	1	2	2	2	2	3	3	2	0	-2	-2	-2	-2	-3	-4	0	3
15	-4	-4	-4	-4	-3	-3	-3	-2	-2	2	3	4	6	6	6	5	3	3	2	2	2	2	2	1	1	6
16	1	1	1	1	0	1	2	2	3	6	8	8	8	8	8	8	7	6	4	4	4	3	3	3	4	8
17	3	3	3	2	2	2	3	3	5	4	7	7	8	9	8	7	7	6	6	4	1	1	1	1	4	9
18	1	2	2	2	1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-2	-3	-3	-3	-3	-3	-1	2
19	-3	-4	-4	-4	-4	-5	-7	-7	-4	-2	0	1	-1	1	1	0	-1	-2	-2	-2	-2	-2	-2	-2	-2	1
20	-2	-3	-3	-3	-3	-3	-2	-2	-2	-1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	0	2
21	2	1	0	-1	-1	-1	-2	-2	-1	-1	-2	-1	0	0	-2	-2	-3	-4	-4	-4	-5	-5	-4	-5	-2	2
22	-6	-6	-7	-8	-9	-9	-10	-11	-11	-9	-8	-6	-4	-4	-6	-7	-9	-9	-11	-11	-12	-12	-14	-14	-9	-4
23	-13	-13	-14	-14	-14	-15	-16	-15	-11	-7	-4	-3	-2	-4	-4	-6	-7	-8	-9	-8	-8	-8	-8	-8	-9	-2
24	-8	-8	-7	-7	-7	-7	-6	-6	-4	-3	-2	-2	-2	-2	-1	-1	-2	-1	-1	-1	-1	0	0	1	-3	1
25	0	1	1	1	1	1	1	1	1	1	2	3	2	2	1	1	-1	-2	-3	-3	-4	-3	-3	-4	0	3
26	-4	-4	-6	-7	-9	-9	-10	-10	-9	-9	-8	-8	-9	-9	-9	-9	-11	-11	-11	-12	-12	-12	-12	-12	-9	-4
27	-12	-12	-12	-12	-11	-11	-11	-11	-9	-9	-7	-7	-6	-6	-7	-7	-8	-8	-9	-9	-9	-9	-9	-9	-9	-6
28	-9	-9	-9	-9	-8	-8	-8	-8	-7	-3	0	1	-2	-2	-3	-3	-4	-5	-6	-6	-6	-6	-6	-6	-6	1
29	-6	-6	-6	-6	-6	-7	-7	-7	-6	-6	-4	-3	-2	-4	-4	-4	-6	-7	-7	-8	-9	-9	-10	-9	-6	-2
30	-8	-8	-8	-9	-8	-7	-7	-7	-6	-2	-2	1	0	1	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-3	1
AV	-1	-1	-1	-1	-2	-2	-2	-2	-1	1	3	4	4	4	3	3	2	1	0	-1	-1	-1	-1	-1	0	
PK	7	7	7	7	7	7	6	6	8	12	13	13	14	16	17	16	14	13	9	11	11	11	7	8		17
MN	-13	-13	-14	-14	-14	-15	-16	-15	-11	-9	-8	-8	-9	-9	-9	-9	-11	-11	-11	-12	-12	-12	-14	-14		

MONTHLY MINIMUM = -16

TEMPERATURE @ 60M
DEGREE C

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	7	7	8	7	8	6	6	6	8	12	13	13	15	14	15	13	12	11	10	9	8	8	8	8	10	15
2	7	8	7	7	7	6	7	7	8	9	9	11	13	13	13	11	9	8	7	6	6	6	4	4	8	13
3	4	4	3	3	3	3	3	3	7	9	12	14	15	14	16	15	13	11	9	8	7	6	5	4	8	16
4	4	4	4	3	5	6	6	7	9	13	14	17	18	18	18	17	16	13	12	10	9	9	10	8	10	18
5	8	8	8	8	8	7	7	8	9	13	13	13	12	13	13	14	13	11	9	8	8	7	6	5	10	14
6	4	3	3	4	3	3	3	4	8	11	13	14	15	16	16	14	13	11	10	9	8	8	8	8	9	16
7	8	8	8	7	7	7	8	8	9	11	13	14	15	16	16	15	14	13	12	11	11	11	8	7	11	16
8	6	6	5	2	0	-1	-1	-2	-2	-2	-2	-1	-1	-1	-2	-4	-4	-5	-5	-5	-6	-6	-6	-6	-2	6
9	-6	-7	-7	-7	-8	-9	-8	-7	-4	-2	2	6	3	4	2	2	-1	-3	-3	-3	-3	-3	-2	-2	-3	6
10	-2	-1	-2	-2	-1	-2	-2	-1	2	4	7	8	10	9	7	6	4	3	2	2	1	1	2	2	2	10
11	3	3	3	4	4	5	5	4	5	8	9	8	7	8	8	8	7	6	6	4	4	4	4	4	6	9
12	3	3	3	3	3	3	3	2	2	2	3	5	6	7	7	7	6	4	4	4	4	4	4	4	4	7
13	4	4	5	6	6	6	2	1	3	5	6	7	8	7	6	8	6	4	4	3	3	3	2	6	5	8
14	1	1	-1	-1	-2	-3	-4	-3	-2	0	1	1	2	2	3	3	2	-1	-2	-2	-2	-2	-3	-4	-1	3
15	-4	-4	-4	-4	-3	-3	-2	-2	-1	2	3	4	7	7	6	4	3	3	2	2	2	2	2	2	1	7
16	2	1	1	2	2	2	2	2	3	6	8	9	9	8	9	8	6	5	4	4	4	3	3	3	4	9
17	3	3	3	2	2	2	3	3	5	6	7	7	8	9	8	7	6	6	6	4	1	1	1	1	4	9
18	1	2	2	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-2	-2	-3	-3	-3	-3	-4	-1	2
19	-4	-4	-4	-4	-5	-6	-6	-6	-4	-2	-1	1	-1	1	1	0	-1	-2	-2	-2	-3	-3	-2	-2	-3	1
20	-3	-3	-3	-3	-3	-3	-3	-2	-2	-1	1	2	2	1	1	1	0	1	1	1	1	0	1	2	-1	2
21	1	1	-1	-1	-1	0	-2	-2	-2	-1	-2	-2	-1	-1	0	-2	-4	-4	-4	-4	-5	-5	-5	-5	-2	1
22	-6	-6	-7	-7	-9	-9	-11	-11	-11	-9	-8	-7	-4	-4	-6	-7	-9	-10	-11	-12	-12	-12	-14	-14	-9	-4
23	-13	-13	-14	-14	-15	-15	-16	-14	-10	-7	-4	-3	-3	-3	-4	-6	-7	-8	-9	-8	-8	-9	-8	-8	-9	-3
24	-8	-8	-8	-7	-7	-7	-6	-6	-4	-3	-3	-2	-2	-2	-1	-2	-2	-1	-1	-1	-2	-1	0	1	-3	1
25	0	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	-2	-2	-3	-3	-3	-3	-3	-4	0	2
26	-4	-4	-6	-8	-9	-10	-10	-11	-10	-9	-9	-8	-9	-9	-9	-9	-11	-11	-12	-12	-12	-12	-12	-12	-10	-4
27	-12	-12	-12	-12	-11	-11	-11	-11	-10	-9	-7	-6	-6	-5	-6	-7	-8	-8	-9	-9	-9	-9	-9	-9	-9	-5
28	-9	-9	-9	-9	-8	-8	-8	-8	-6	-3	-1	1	-1	-1	-2	-4	-5	-6	-6	-6	-6	-6	-6	-6	-5	1
29	-7	-6	-6	-6	-7	-7	-7	-7	-6	-6	-4	-3	-2	-4	-4	-4	-6	-7	-7	-8	-8	-9	-9	-9	-6	-2
30	-8	-8	-8	-8	-8	-7	-7	-7	-5	-2	-2	1	0	1	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-3	1
AV	-1	-1	-1	-1	-1	-1	-2	-1	0	2	3	4	5	5	4	4	2	1	1	0	0	0	-1	-1	1	
PK	8	8	8	8	8	7	8	8	9	13	14	17	18	18	18	17	16	13	12	11	11	11	10	8		18
MN	-13	-13	-14	-14	-15	-15	-16	-14	-11	-9	-9	-8	-9	-9	-9	-9	-11	-11	-12	-12	-12	-12	-14	-14		

MONTHLY MINIMUM = -16

DELTA TEMPERATURE 60-10M
DEGREE C*100

CB-TRACT
TRAILER AA23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	128	61	139	100	67	50	128	128	33	-117	-122	-194	-183	-167	-178	-117	-61	44	72	106	100	172	161	200	23	200
2	144	144	244	261	222	128	133	117	94	-11	-67	-111	-161	-106	-122	-83	-94	-33	28	56	128	139	111	72	51	261
3	133	117	67	44	72	183	122	106	44	-67	-128	-122	-206	-200	-228	-194	-94	-17	117	117	89	106	117	106	12	183
4	144	172	144	78	189	244	222	222	189	61	-122	-194	-161	-178	-178	-144	-83	44	189	194	128	106	144	144	65	244
5	161	144	83	161	200	156	72	89	-22	-94	-100	-83	-72	-72	-78	-133	-111	-28	28	72	44	39	50	33	22	200
6	39	100	167	261	222	189	161	167	-44	-94	-167	-200	-228	-250	-233	-161	-89	17	89	78	78	72	100	78	15	261
7	167	178	167	100	50	106	44	-6	-44	-83	-128	-111	-172	-144	-156	-106	-156	-17	-11	-17	6	-6	-17	-6	-15	178
8	-11	0	-28	-61	-39	-50	-50	-56	-56	-56	-61	-56	-50	-67	-72	-72	-67	-56	-50	-33	-56	-44	-44	-44	-49	0
9	-56	-50	-39	-22	-17	-39	78	133	122	-28	33	139	-117	-94	-122	-156	-100	0	44	39	28	28	61	44	-4	139
10	50	67	72	83	150	117	83	139	111	28	-11	-128	-72	-117	-117	-83	-50	-11	22	61	106	61	67	133	32	150
11	94	22	28	17	-6	6	-6	0	-11	-72	-72	-39	-39	-72	-78	-28	-22	-11	11	28	17	33	39	44	-5	94
12	67	44	67	39	39	33	61	28	-17	-17	-44	-106	-139	-83	-111	-89	-67	-17	39	83	89	78	28	22	1	89
13	11	28	11	-11	-11	-22	-28	28	28	-111	-150	-178	-194	-128	-72	-133	-83	17	156	111	89	78	56	56	-19	156
14	-17	6	6	11	0	17	39	44	-28	-61	-89	-117	-117	-122	-178	-178	-117	0	17	11	56	167	139	94	-17	167
15	111	83	139	144	111	78	83	61	56	-67	-111	-117	-167	-200	-106	-56	-17	17	67	111	78	67	100	150	26	150
16	178	39	106	194	311	200	144	78	0	-122	-78	-167	-111	-128	-144	-72	-50	17	72	100	100	83	39	22	34	311
17	11	-6	11	17	11	33	28	28	-28	-94	-56	-61	-94	-117	-78	-50	-28	6	-22	-39	-33	-11	-17	-11	-25	33
18	22	39	39	0	-6	-39	-44	-44	-50	-56	-67	-72	-72	-72	-67	-56	-56	-17	-22	-22	-22	-44	-50	-56	-35	39
19	-56	-50	-39	-33	-44	-22	33	28	-39	-150	-161	-133	-128	-139	-233	-111	-61	-50	-44	-50	-50	-50	-50	-50	-70	33
20	-56	-61	-56	-50	-56	-56	-50	-50	-61	-61	-106	-133	-117	-78	-78	-67	-39	-33	-39	-33	-33	6	11	-17	-55	11
21	-33	-33	-17	-17	-28	-11	22	0	-39	-33	-44	-39	-33	-50	-50	-50	-44	-17	11	-6	22	39	6	-17	-19	39
22	-33	-22	50	133	-11	-61	-67	-67	-61	-83	-117	-133	-144	-167	-133	-89	-72	-44	-44	-22	39	111	83	-11	-40	133
23	28	44	28	-11	-11	28	61	28	83	11	-144	-206	-172	-178	-150	-111	-83	11	56	22	11	67	106	39	-19	106
24	-17	-22	-33	-33	-39	-44	-28	-39	-39	-61	-67	-78	-72	-72	-72	-61	-28	-11	-22	-50	-33	-28	-17	-28	-41	-11
25	-33	-22	-11	-6	-22	-39	-33	-22	-17	-28	-17	-94	-56	-50	-50	-44	-67	-56	-33	-6	50	44	-6	-39	-27	50
26	-50	-50	-61	-61	-67	-78	-72	-67	-78	-94	-100	-100	-106	-89	-94	-83	-67	-56	-56	-44	-22	-39	-39	-44	-67	-22
27	-39	-39	-44	-28	-50	-39	-39	-39	-56	-61	-78	-139	-100	-106	-83	-83	-61	-61	-50	-39	-33	-39	-39	-22	-57	-22
28	-6	6	22	33	33	33	22	6	17	-6	-106	-61	-139	-100	-89	-67	-56	-33	-22	-33	-39	-28	-22	-33	-28	33
29	-28	-28	-33	-44	-22	0	11	11	-28	-56	-67	-78	-128	-89	-72	-61	-50	-56	-22	89	167	94	67	33	-16	167
30	50	78	72	44	89	78	28	6	0	-72	-72	-94	-89	-72	-72	-67	-44	-39	-22	-22	-22	-17	-28	-11	-13	89
AV	37	33	43	45	45	39	39	35	2	-59	-87	-107	-121	-117	-116	-94	-67	-16	19	29	36	43	39	29	-11	
PK	178	178	244	261	311	244	222	222	189	61	33	139	-33	-50	-50	-28	-17	44	189	194	167	172	161	200		311
MN	-56	-61	-61	-61	-67	-78	-72	-67	-78	-150	-167	-206	-228	-250	-233	-194	-156	-61	-56	-50	-56	-50	-50	-56		

MONTHLY MINIMUM = -250

BAROMETRIC PRESSURE
MILLIBARS

CB-TRACT
TRAILER AB23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVE	PEAK
1	796	796	796	796	796	796	797	797	797	797	797	797	796	796	796	796	796	796	796	796	796	797	797	797	796	797
2	797	797	797	797	797	797	797	797	793	795	794	793	792	793	793	794	793	793	793	793	794	794	794	794	795	797
3	794	794	794	794	794	795	795	797	800	796	797	797	797	798	799	799	799	799	799	799	799	799	799	799	797	800
4	799	799	798	798	798	798	798	798	798	797	797	796	796	795	795	795	795	795	795	795	795	796	795	795	797	799
5	795	795	795	795	795	795	795	795	795	795	794	794	794	794	793	793	794	794	795	795	796	796	796	797	795	797
6	797	797	797	796	796	797	797	797	798	797	797	797	796	795	795	795	795	795	795	795	795	795	795	795	796	798
7	795	795	794	794	793	793	793	793	793	792	792	791	790	789	789	789	788	789	788	788	788	788	788	788	791	795
8	788	787	787	788	788	788	788	789	789	789	790	790	789	789	790	791	792	793	794	794	795	796	796	796	791	796
9	797	797	798	798	798	799	799	799	799	799	799	798	798	798	798	798	798	798	798	798	798	798	798	798	798	799
10	797	797	797	797	797	797	798	798	797	797	797	797	796	796	796	796	796	795	796	796	796	795	795	795	796	798
11	795	794	794	793	793	792	792	792	791	791	791	789	787	787	787	788	788	788	789	790	790	790	791	791	791	795
12	791	791	791	791	791	791	791	792	792	792	792	792	791	790	790	790	791	791	791	791	791	791	790	790	791	792
13	789	788	788	787	787	787	790	790	790	790	790	789	789	788	788	787	787	787	786	786	786	785	784	784	788	790
14	785	786	787	788	789	790	791	792	792	793	793	793	794	795	795	795	796	796	797	798	798	798	799	799	793	799
15	800	799	799	799	800	799	800	800	800	800	800	800	799	799	798	798	798	798	798	798	798	798	798	798	799	800
16	797	797	796	796	796	796	796	795	795	795	794	794	793	793	793	793	793	793	793	793	794	794	794	794	794	797
17	793	793	793	793	792	792	792	792	791	791	790	790	789	789	788	787	787	788	788	789	789	788	787	787	790	793
18	786	785	785	785	785	785	785	785	786	786	786	786	785	785	785	786	786	787	788	788	789	789	789	789	786	789
19	789	790	790	790	790	790	791	791	791	791	791	790	789	789	788	788	788	788	787	787	787	786	785	785	789	791
20	784	784	784	783	783	783	782	782	782	782	781	780	779	779	779	779	778	779	778	778	778	778	777	778	780	784
21	777	777	777	776	776	775	776	776	777	777	777	777	777	777	778	778	779	779	780	780	781	781	782	782	778	782
22	782	783	783	783	784	784	785	785	785	786	786	786	786	785	784	786	786	787	787	787	787	787	787	787	785	787
23	787	787	787	787	787	787	788	788	788	788	788	788	788	788	788	789	789	790	790	790	791	791	791	792	789	792
24	792	792	791	792	792	792	792	792	792	792	792	792	792	792	792	791	791	791	790	790	788	788	788	788	791	792
25	787	787	786	784	784	782	782	781	781	781	780	779	779	778	778	778	779	780	780	780	780	780	780	781	781	787
26	781	781	781	782	783	784	785	785	786	787	787	788	788	788	789	790	791	792	792	792	793	793	793	793	788	793
27	792	792	792	792	792	792	792	792	793	793	793	792	792	792	792	793	793	793	793	793	793	793	793	793	793	793
28	792	792	792	792	792	792	792	792	792	792	792	791	791	790	789	789	789	788	788	788	788	787	787	786	790	792
29	786	786	786	785	785	785	785	786	786	787	787	787	787	787	787	788	789	789	789	790	790	790	791	791	787	791
30	791	791	791	791	791	791	792	792	792	792	793	793	792	792	792	792	792	792	792	792	792	792	792	792	792	793
AV	791	791	791	791	791	791	791	791	791	791	791	791	790	790	790	790	791	791	791	791	791	791	791	791	791	
PK	800	799	799	799	800	799	800	800	800	800	800	800	799	799	799	799	799	799	799	799	799	799	799	799		800
MN	777	777	777	776	776	775	776	776	777	777	777	777	777	777	778	778	778	779	778	778	778	778	777	778		

MONTHLY MINIMUM = 775

PRECIPITATION
CM*100

CB-TRACT
TRAILER AB23
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

HOUR (LOCAL STANDARD TIME)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TL	PEAK
1																									( )	
2																									( )	
3																									( )	
4																									( )	
5																									( )	
6																									( )	
7																									( )	
8												1	1		3	1	3	1	2	1				1	14	3
9		1	1					1																	3	1
10																									( )	
11																									( )	
12																									( )	
13																		2							2	2
14										1			1												2	1
15																									( )	
16																									( )	
17																					1	1			2	1
18					1		1																		1	1
19																									( )	
20																									( )	
21					1	1									1										4	1
22																									( )	
23																									( )	
24																									( )	
25								1		2						1						1	1	1	6	2
26	1																								2	1
27																									1	
28																									1	
29																									( )	
30																									( )	
TL	2	1	1		1	1	1	2	1	4	1	1	2		4	2	3	3	2	1	1	2	1	2	37	
PK	1	1	1		1	1	1	1		2		1	1		3	1	3	2	2	1	1	1	1	1		3

PRECIPITATION
CM*100

CB TRACT
MRI AD28
NOV 1983
CATHEDRAL BLUFFS SHALE OIL CO.

	HOUR (LOCAL STANDARD TIME)																							
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1																									
2																									
3																									
4																									
5																									
6																									
7												3											15	10	28
8	5	38	25	20	13	15	10	5	5	5	10	18	3		5										178
9									3	20															23
10																									
11																									
12																									
13						13	5	3																13	33
14																									
15																									
16																									
17																				3	10	3			15
18				5	5		8	5	3																25
19																									
20																									
21			8	5	10	3	3																		28
22																									
23																									
24																									
25								3		18			3	3		3	5				5	8	8	8	61
26	8	8	5																						20
27																									
28																									
29																									
30																									
TL	13	46	38	30	28	30	25	15	10	43	10	20	5	3	5	3	5			3	15	10	23	30	411

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STABILITY CLASS USING DT/DZ                                   CB-TRACT
DT 60-10M                                                     TRAILER AA23
WS 10M                                                         NOV  1983
                                                              OCCIDENTAL OIL SHALE, INC.

                                    HOUR (LOCAL STANDARD TIME)

DAY   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24 AVE

  1   F   E ( )   F   E   E   F   F   E   B   B   B   B   B   B   B   D   E   E   F   F   F   F   F   D
  2   F   F   F   F   F   F   F   F   F   E   D   B   A   C   A   C   B   D   E   E   F   F   F   E   E
  3 ( ) ( )   E ( )   E   F   F   F   E   D   A   A   A   B   A   A   B   E ( )   F   F   F   F   F   D
  4   F   F   F   F   F   F   F   F ( )   E   A   A   B   B   B   B   C   E   F   F   F   F   E   F   E
  5   F   F   F   F   F   F   E   F   E   B   C   C   D   D   C   B   B   D   E   E   E   E   E   E   E
  6   E   F ( )   F   F   F   F   F   D   B   A   B   A   A   B   B   B   E   E   F   F   E   F   F   D
  7   F   F   F   F   E   F   E   D   D   D   C   D   D   D   C   D   D   D   E   E   E   E   E   E   E
  8   E   E   D   D   D   D   D   D   D   D   D   D   D   D   D   D   D   D   D   D   D   D   D   D   D
  9   D   D   D   E   E   D   F   F   F   D   E   F   A   B   A   A   B   E   E   E   E   E   E   E   D
 10   E   E   E   F   F   F   F   F   F   E   E   A   D   A   B   C   D   E   E   E   F   E   E   F   E
 11   F   E   E   E   E   E   E   E   E   D   D   D   D   D   D   D   D   E   E   E   E   E   E   E   E
 12   E   E   E   E   E   E   E   E   E   E   D   A   A   C   B   B   D   E   E   E   E   F   E   E   D
 13   E   D   D   D   D   D   D   E   E   A   A   B   A   A   D   B   C   E   E   F   F   F   E   E   D
 14   E   E   E   E   D   E   E   E   D   D   B   B   B   A   A   B   B   E   E   E   E   F   F   F   D
 15   F   F   F   F   F   F   F   E   E   D   B   B   A   B   B   D   E   E   E   F   F   E   F   F   E
 16   F   E   F   F   F   F   F   F   E   A   C   B   D   D   D   D   D   E   E   E   E   F   E   E   E
 17   E   E   E   E   E   E   E ( )   D   D   D   D   D   D   C   D   D   E   E   D   D   E   E   E   D
 18   E   E   E   E   E   D ( ) ( ) ( ) ( )   D   D   D   D   D   D   D   E   E   E   E   D   D   D   D
 19   D   D   D   D   D   E   E   E   D   A   A   A   A   A   B   B   D   D   D   D   D   D   D   D   C
 20   D   D   D   D   D   D   D   D   D   D   C   D   D   D   D   D   D   D   D   D   D   E   E   E   D
 21   D   D   E   E   D   E   E   E   D   D   D   D   D   D   D   D   D   E   E   E   E   E   E   E   E
 22   D   E   E   F   E   D   D   D   D   C   A   B   B   A   A   B   D   D   D   E   E   F   F   E   D
 23   E   E   E   E   E   E   E   E   F   E   A   A   B   B   B   B   C   E   E   E   E   E   E   E   D
 24   E   E   D   D   D   D   D   D   D   D   D   C   D   D   D   D   D   E   E   D   D   D   E   D   D
 25   D   E   E   E   E   D   D   E   E   D   E   B   D   D   D   D   D   D   D   E   E   E   E   D   D
 26   D   D   D   D   D   D   D   D   C   C   C   C   C   D   D   C   D   D   D   D   E   D   D   D   D
 27   D   D   D   D   D   D   D   D   D   D   C   C   B   B   C   C   D   D   D   D   D   D   D   E   D
 28   E   E   E   E   E   E   E   E   E   E   A   D   A   B   B   D   D   D   E   D   D   D   E   D   D
 29   D   D   D   D   E   E   E   E   D   D   D   C   B   B   D   D   D   D   E   F   F   F   E   E   D
 30   E   F   E   E   F   F   E   E   E   D   D   B   B   D   D   D   D   D   E   E   E   E   D   E   E

AVE   E   E   E   E   E   E   E   E   E   D   C   C   C   C   C   C   D   E   E   E   E   E   E   E   D


TOTAL OCCURRENCES:  A= 39    B= 58    C= 28    D=239    E=231    F=113    HOURS MISSING= 12
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                  NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

       NITRIC OXIDE (NO)                                                           CATHEDRAL BLUFFS SHALE OIL

                              TRAILER   AB23     PERIOD(11/01/83 TO 11/30/83)

                                                         WIND DIRECTION
                     N   NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
CONCENTRATION
     MAX             2    1    1    1    2    2    2    1    2    2    2    1    1    1    2    2    1
   UG/M**3
                ...................................................................................................
     GT   65. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    60. - 65. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    55. - 60. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    50. - 55. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    45. - 50. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    40. - 45. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    35. - 40. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    30. - 35. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    25. - 30. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    20. - 25. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    15. - 20. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
    10. - 15. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
     5. - 10. :      0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
     LT    5. :     18   18    8   13   19   34   47   37   68  167   90   24   27   31   39   54   12 :    706
      TOTAL   :     18   18    8   13   19   34   47   37   68  167   90   24   27   31   39   54   12      706
                ...................................................................................................

      MEAN           0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0      0
      CONC.

               0 = NO OBSERVATIONS
               NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

      OXIDES OF NITROGEN (NOX)                                                     CATHEDRAL BLUFFS SHALE OIL

                          TRAILER   AB23      PERIOD(11/01/83 TO 11/30/83)

                                                      WIND DIRECTION
                     N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
 CONCENTRATION
     MAX             9    7    5    7    5    5    7    5    7    7    7    9    7    7    7    9    5
   UG/M**3

               ..........................................................................................
   GT   65. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  60. - 65. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  55. - 60. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  50. - 55. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  45. - 50. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  40. - 45. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  35. - 40. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  30. - 35. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  25. - 30. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  20. - 25. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  15. - 20. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
  10. - 15. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :      0
   5. - 10. :    7    4    2    7    7    8   11    7   15   53   27    8    7   10   14   23    5 :    215
   LT    5. :   11   14    6    6   12   26   36   30   53  114   63   16   20   21   25   31    7 :    491
    TOTAL   :   18   18    8   13   19   34   47   37   68  167   90   24   27   31   39   54   12      706
               ..........................................................................................

    MEAN         4    3    4    4    4    3    3    3    3    4    3    4    4    4    4    4    4        4
    CONC.

               0 = NO OBSERVATIONS
```

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

NITROGEN DIOXIDE (NO2) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(11/01/83 TO 11/30/83)

CONCENTRATION UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	5	5	5	5	5	3	5	5	7	7	7	7	7	7	7	7	5	
GT 65.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60. - 65.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55. - 60.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50. - 55.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45. - 50.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40. - 45.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35. - 40.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30. - 35.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25. - 30.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20. - 25.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15. - 20.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10. - 15.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5. - 10.	4	4	1	3	4	0	6	2	6	25	11	3	5	4	8	17	4	107
LT 5.	14	14	7	10	15	34	41	35	62	142	79	21	22	27	31	37	8	599
TOTAL	18	18	8	13	19	34	47	37	68	167	90	24	27	31	39	54	12	706
MEAN CONC.	3	3	3	3	3	2	2	3	2	3	3	3	3	3	3	3	3	3

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

CARBON MONOXIDE (CO) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(11/01/83 TO 11/30/83)

	WIND DIRECTION																	
CONCENTRATION MAX UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	
GT 1300. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
1200. -1300. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
1100. -1200. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
1000. -1100. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
900. -1000. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
800. - 900. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
700. - 800. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
600. - 700. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
500. - 600. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
400. - 500. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
300. - 400. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
200. - 300. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
100. - 200. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 100. :	18	19	9	14	19	35	47	37	68	166	88	24	27	30	40	53	12 :	706
TOTAL :	18	19	9	14	19	35	47	37	68	166	88	24	27	30	40	53	12	706
MEAN CONC.	32	48	33	39	34	36	29	32	32	31	35	35	36	33	30	29	40	33

0 = NO OBSERVATIONS

NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

OZONE (O3) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(11/01/83 TO 11/30/83)

CONCENTRATION	WIND DIRECTION																	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX UG/M**3	80	70	72	76	72	74	74	80	82	88	88	80	76	78	78	76	68	
GT 140. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
130. - 140. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
120. - 130. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
110. - 120. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
100. - 110. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
90. - 100. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
80. - 90. :	1	0	0	0	0	0	0	2	2	9	8	1	0	0	0	0	0 :	23
70. - 80. :	4	1	1	3	1	3	13	5	9	17	18	10	6	6	8	5	0 :	110
60. - 70. :	8	6	5	5	15	15	21	24	43	89	37	5	13	10	20	31	7 :	354
50. - 60. :	1	12	3	4	3	10	12	6	9	46	19	4	7	9	3	13	5 :	166
40. - 50. :	4	0	0	2	0	7	1	0	5	6	7	4	1	6	9	5	0 :	57
30. - 40. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
20. - 30. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
LT 20. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
TOTAL :	18	19	9	14	19	35	47	37	68	167	89	24	27	31	40	54	12	710
PERCENT	3.	3.	1.	2.	3.	5.	7.	5.	10.	24.	13.	3.	4.	4.	6.	8.	2.	100.

0 = NO OBSERVATIONS

```
              NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

     SULFUR DIOXIDE (SO2)                                                          CATHEDRAL RLUFFS SHALE OIL

                          TRAILER   AB23      PERIOD(11/01/83 TO 11/30/83)
                                                 WIND DIRECTION
                   N  NNE   NE  ENE    E  ESE   SE  SSE    S  SSW   SW  WSW    W  WNW   NW  NNW CALM   TOTAL
CONCENTRATION
     MAX           0    2    0    0    2    2    2    0    2    2    2    5    0    2    2    2    2
  UG/M**3
              ..........................................................................................
  GT    13. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
 12. -  13. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
 11. -  12. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
 10. -  11. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  9. -  10. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  8. -   9. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  7. -   8. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  6. -   7. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  5. -   6. :    0    0    0    0    0    0    0    0    0    0    0    1    0    0    0    0    0 :     1
  4. -   5. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  3. -   4. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  2. -   3. :    0    3    0    0    2    2    1    0    2    3   14    1    0    2    1    2    1 :    34
  1. -   2. :    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0 :     0
  LT     1. :   17   16    9   14   17   33   46   37   66  164   76   22   26   30   39   50   11 :   673
   TOTAL    :   17   19    9   14   19   35   47   37   68  167   90   24   26   32   40   52   12     708
              ..........................................................................................

   MEAN          0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0       0
   CONC.

              0 = NO OBSERVATIONS
```

```
                      NUMBER OF ONE HOUR SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

            HYDROGEN SULFIDE (H2S)                                                          CATHEDRAL BLUFFS SHALE OIL

                                      TRAILER   AB23      PERIOD(11/01/83 TO 11/30/83)
                                                              WIND DIRECTION
                        N   NNE    NE   ENE     E   ESE    SE   SSE     S   SSW    SW   WSW     W   WNW    NW   NNW  CALM   TOTAL
   CONCENTRATION
        MAX             0     0     0     1     0     2     2     2     2     1     1     1     0     1     4     2     0
     UG/M**3
                ......................................................................................................
     GT    13. :        0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
    12. -  13. :        0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
    11. -  12. :        0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
    10. -  11. :        0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
     9. -  10. :        0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
     8. -   9. :        0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
     7. -   8. :        0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
     6. -   7. :        0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
     5. -   6. :        0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
     4. -   5. :        0     0     0     0     0     0     0     0     0     0     0     0     0     0     1     0     0 :     1
     3. -   4. :        0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0 :     0
     2. -   3. :        0     0     0     0     0     1     1     1     1     0     0     0     0     0     1     1     0 :     6
     1. -   2. :        0     0     0     1     0     0     7     0     2     7     5     1     0     1     2     0     0 :    26
     LT    1.  :       18    19     9    13    19    34    39    36    65   162    85    23    27    29    36    53    12 :   679
      TOTAL    :       18    19     9    14    19    35    47    37    68   169    90    24    27    30    40    54    12     712
                ......................................................................................................
      MEAN              0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0       0
      CONC.

                0 = NO OBSERVATIONS
```

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

10 METER LEVEL CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(11/01/83 TO 11/30/83)

WIND SPEED MAX METERS/SEC		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR		TOTAL
		4	3	1	1	2	2	3	4	8	9	10	4	6	4	6	8	0		
GT 11.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	:	0
8. - 11.	:	0	0	0	0	0	0	0	0	1	8	6	0	0	0	0	2	0	:	17
5. - 8.	:	0	0	0	0	0	0	0	0	10	28	8	0	3	0	2	11	0	:	62
3. - 5.	:	8	1	0	0	0	0	3	5	17	69	33	9	3	8	10	22	0	:	188
1. - 3.	:	3	9	3	5	12	22	32	28	30	39	25	9	10	19	23	15	0	:	284
LT 1.	:	7	9	6	9	7	13	12	4	10	26	18	6	11	5	5	4	0	:	152
TOTAL	:	18	19	9	14	19	35	47	37	68	170	90	24	27	32	40	54	0		703
PERCENT		3.	3.	1.	2.	3.	5.	7.	5.	10.	24.	13.	3.	4.	5.	6.	8.	0.		100.

WIND DIRECTION: N through VAR

0 = NO OBSERVATIONS

(12/09/83-RPI)

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

30 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23   PERIOD(11/01/83 TO 11/30/83)

WIND SPEED MAX METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX	4	2	1	2	4	3	5	5	11	14	15	7	9	6	11	12	0	
GT 11. :	0	0	0	0	0	0	0	0	1	10	4	0	0	0	1	1	0 :	17
8. - 11. :	0	0	0	0	0	0	0	0	11	21	5	0	2	0	5	4	0 :	48
5. - 8. :	0	0	0	0	0	0	1	4	16	62	17	8	2	6	3	14	0 :	133
3. - 5. :	8	0	0	0	3	4	11	17	30	29	12	3	4	20	21	19	0 :	181
1. - 3. :	12	2	3	6	8	15	32	27	26	16	14	12	8	14	11	12	0 :	218
LT 1. :	7	5	3	8	3	12	8	11	17	12	8	3	6	4	0	6	0 :	113
TOTAL :	27	7	6	14	14	31	52	59	101	150	60	26	22	44	41	56	0	710
PERCENT	4.	1.	1.	2.	2.	4.	7.	8.	14.	21.	8.	4.	3.	6.	6.	8.	0.	100.

0 = NO OBSERVATIONS

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

60 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(11/01/83 TO 11/30/83)

WIND SPEED METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX	5	2	2	2	4	4	5	7	13	16	16	9	10	6	9	12	0	
GT 11. :	0	0	0	0	0	0	0	0	3	21	3	0	0	0	0	2	0 :	29
8. - 11. :	0	0	0	0	0	0	0	0	20	31	6	2	5	0	4	7	0 :	75
5. - 8. :	3	0	0	0	0	0	1	6	21	66	15	1	3	8	6	19	0 :	149
3. - 5. :	4	0	0	0	2	1	15	26	29	22	14	9	8	13	23	15	0 :	181
1. - 3. :	5	3	4	6	3	9	19	36	28	21	10	9	12	13	12	9	0 :	199
LT 1. :	5	0	4	3	4	2	2	6	14	7	6	5	5	5	2	4	0 :	74
TOTAL :	17	3	8	9	9	12	37	74	115	168	54	26	33	39	47	56	0	707
PERCENT	2.	0.	1.	1.	1.	2.	5.	10.	16.	24.	8.	4.	5.	6.	7.	8.	0.	100.

0 = NO OBSERVATIONS

```
FIVE MAXIMUM SLIDING AVERAGE                                      C-B TRACT
UG/M**3                                                           SITE AB23
                                                                  NOV  1983
                                                                  CATHEDRAL BLUFFS SHALE OIL CO.

      COMPONENT     AVG. TIME     RANK     DAY     HOUR(BEG)     VALUE

        SO2            3 HR
                                    1        3        12           3.5
                                    2        2        13           2.6
                                    3        5        11           2.6
                                    4        5        15           2.6
                                    5       22        24           2.6

        SO2           24 HR
                                    1        2        21           1.0
                                    2        4        18           0.8
                                    3       22        11           0.5
                                    4        1        17           0.4
                                    5       10        21           0.4

        CO             1 HR
                                    1        1         1          60.0
                                    2        1         2          60.0
                                    3        1         3          60.0
                                    4        1         4          60.0
                                    5        1         5          60.0

        CO             8 HR
                                    1        1         1          60.0
                                    2        1         9          60.0
                                    3        1        17          60.0
                                    4        2         1          60.0
                                    5        3        17          60.0

        O3             1 HR
                                    1       21        15          88.3
                                    2       21        16          88.3
                                    3       21        14          86.3
                                    4       21        17          86.3
                                    5       16        16          84.4

        PART          24 HR
                                    1        2         1          18.5
                                    2        6         1           9.3
                                    3       30         1           3.4
                                    4       14         1           3.0
                                    5       26         1           2.2
```

DATA ACQUISITION INSTRUMENT EFFICIENCY
CATHEDRAL BLUFFS SHALE OIL COMPANY
A.Q. TRAILER AB23

NOVEMBER 1983

GASEOUS PARAMETERS	
NOX:	100 %
NO:	100
NO2:	100
O3:	100
CO:	100
SO2:	100
H2S:	100

METEOROLOGICAL PARAMETERS	
WIND SPEED	
10 M:	100 %
30 M:	100
60 M:	100
WIND DIRECTION	
10 M:	99
30 M:	100
60 M:	100
SIGMA HORIZONTAL WIND DIRECTION	
10 M:	99
30 M:	100
60 M:	100
TEMPERATURE	
10 M:	100
30 M:	100
60 M:	100
DELTA TEMPERATURE:	100
RELATIVE HUMIDITY:	100
SOLAR RADIATION:	100
BAROMETRIC PRESSURE:	100
PRECIPITATION:	100

PARTICULATES: 100 %

DATA CORRECTIONS

1.3.8 Date Corrections

Corrected data during this monitoring period include 1982 visual range data. Data reported previously was converted from photographic density readings to visual range incorrectly.

Please replace the incorrect tables with these corrected data.

MEAN DAILY VISUAL RANGE BY VIEW
1982

DATE	VIEW	MILE
03MAY82	1	87
03MAY82	2	85
03MAY82	3	85
03MAY82	4	92
07MAY82	1	90
07MAY82	2	90
07MAY82	3	91
07MAY82	4	122
11MAY82	1	87
11MAY82	2	60
11MAY82	3	74
11MAY82	4	85
19MAY82	1	55
19MAY82	2	70
19MAY82	3	70
19MAY82	4	76
23MAY82	1	72
23MAY82	2	73
23MAY82	3	81
23MAY82	4	95
27MAY82	1	84
27MAY82	2	82
27MAY82	3	89
27MAY82	4	106
04JUN82	1	89
04JUN82	2	85
04JUN82	3	100
04JUN82	4	106
08JUN82	1	80
08JUN82	2	69
08JUN82	3	85
08JUN82	4	91
12JUN82	1	118
12JUN82	2	117
12JUN82	3	124
12JUN82	4	131
16JUN82	1	112
16JUN82	2	105
16JUN82	3	109
16JUN82	4	119
04SEP82	1	87
04SEP82	2	77
04SEP82	3	81
04SEP82	4	92
16SEP82	1	112
16SEP82	2	94
16SEP82	3	109
16SEP82	4	120
20SEP82	1	86
20SEP82	2	75
20SEP82	3	84
20SEP82	4	93
24SEP82	1	115
24SEP82	2	103
24SEP82	3	120

MEAN DAILY VISUAL RANGE BY VIEW
1982

DATE	VIEW	MILE
24SEP82	4	139
28SEP82	1	76
28SEP82	2	85
28SEP82	3	84
28SEP82	4	73
02OCT82	1	89
02OCT82	2	74
02OCT82	3	89
02OCT82	4	113
06OCT82	1	104
06OCT82	2	87
06OCT82	3	95
06OCT82	4	117
10OCT82	1	104
10OCT82	2	92
10OCT82	3	92
10OCT82	4	114
14OCT82	1	98
14OCT82	2	77
14OCT82	3	85
14OCT82	4	132
18OCT82	1	98
18OCT82	2	82
18OCT82	3	93
18OCT82	4	117
22OCT82	1	104
22OCT82	2	90
22OCT82	3	108
22OCT82	4	142

MEAN SEASONAL VISUAL RANGE BY VIEW
1982

SEASON	YEAR	VIEW	MILE
SPRING	82	1	88
SPRING	82	2	86
SPRING	82	3	91
SPRING	82	4	103
FALL	82	1	98
FALL	82	2	85
FALL	82	3	95
FALL	82	4	115

SUPPLEMENTAL
DATA REPORTS

1.3.9 Supplemental Data

This section contains quarterly frequency tables of wind speed by direction, and quarterly annual particulate concentration frequency tables for Station AB23.

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Annual Particulate Concentration Frequency Distribution

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Table 1.3.10-1

NUMBER OF DAILY SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

PARTICULATES(TSP)

CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(12/01/82 TO 2/28/83)

CONCENTRATION MAX UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	0	0	0	0	0	0	2	2	6	2	0	0	2	5	4	0	0	
GT 76. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
35. - 76. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
25. - 35. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
15. - 25. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
5. - 15. :	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0 :	3
LT 5. :	0	0	0	0	0	0	2	2	4	3	2	1	1	0	2	0	0 :	17
TOTAL :	0	0	0	0	0	0	2	2	6	3	2	1	1	1	2	0	0 :	20
PERCENT	0.	0.	0.	0.	0.	0.	10.	10.	30.	15.	10.	5.	5.	5.	10.	0.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-2

NUMBER OF DAILY SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

PARTICULATES(TSP) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(3/01/83 TO 5/31/83)

CONCENTRATION MAX UG/M**3	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	0	4	0	0	0	0	0	10	19	0	27	6	14	8	0	23	0	
GT 76. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
35. - 76. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
25. - 35. :	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0 :	1
15. - 25. :	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0 :	3
5. - 15. :	0	0	0	0	0	0	0	2	1	0	0	1	3	2	0	0	0 :	9
LT 5. :	0	1	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0 :	5
TOTAL :	0	1	0	0	0	0	0	3	3	0	1	1	4	3	1	1	0 :	18
PERCENT	0.	6.	0.	0.	0.	0.	0.	17.	17.	0.	6.	6.	22.	17.	6.	6.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-3

NUMBER OF DAILY SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

PARTICULATES(TSP) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(6/01/83 TO 8/31/83)

CONCENTRATION MAX UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
	0	0	17	0	0	25	18	27	34	21	24	0	0	20	0	0	0	
GT 76. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
35. - 76. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
25. - 35. :	0	0	0	0	0	1	0	2	2	0	0	0	0	0	0	0	0 :	5
15. - 25. :	0	0	1	0	0	1	1	0	5	2	1	0	0	1	0	0	0 :	12
5. - 15. :	0	0	0	0	0	0	1	0	2	0	1	0	0	1	0	0	0 :	5
LT 5. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
TOTAL :	0	0	1	0	0	2	2	2	9	2	2	0	0	2	0	0	0 :	22
PERCENT	0.	0.	5.	0.	0.	9.	9.	9.	41.	9.	9.	0.	0.	9.	0.	0.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-4

NUMBER OF DAILY SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

PARTICULATES(TSP) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(9/01/83 TO 11/30/83)

	WIND DIRECTION																	
CONCENTRATION	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX UG/M**3	1	0	0	0	0	0	0	14	22	15	0	46	22	24	0	2	0	
GT 76. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
35. - 76. :	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0 :	1
25. - 35. :	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0 :	1
15. - 25. :	0	0	0	0	0	0	0	0	1	1	0	2	1	1	0	0	0 :	6
5. - 15. :	0	0	0	0	0	0	0	2	3	1	0	0	2	0	0	0	0 :	8
LT 5. :	1	0	0	0	0	0	0	2	0	0	0	0	2	0	0	1	0 :	6
TOTAL :	1	0	0	0	0	0	0	4	4	2	0	4	5	1	0	1	0 :	22
PERCENT	5.	0.	0.	0.	0.	0.	0.	18.	18.	9.	0.	18.	23.	5.	0.	5.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-5

NUMBER OF DAILY SAMPLES BY CONCENTRATION AND WIND DIRECTION AT 10 METERS

PARTICULATES(TSP) CATHEDRAL BLUFFS SHALE OIL

TRAILER AB23 PERIOD(12/01/82 TO 11/30/83)

CONCENTRATION UG/M**3	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
MAX	1	4	17	0	0	25	18	27	34	21	27	46	22	24	4	23	0	
GT 76. :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
35. - 76. :	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0 :	1
25. - 35. :	0	0	0	0	0	1	0	2	2	0	1	1	0	0	0	0	0 :	7
15. - 25. :	0	0	1	0	0	1	1	0	8	3	1	2	1	2	0	1	0 :	21
5. - 15. :	0	0	0	0	0	0	1	4	8	1	1	1	5	4	0	0	0 :	25
LT 5. :	1	1	0	0	0	0	2	5	4	3	2	1	4	1	3	1	0 :	28
TOTAL :	1	1	1	0	0	2	4	11	22	7	5	6	10	7	3	2	0 :	82
PERCENT	1.	1.	1.	0.	0.	2.	5.	13.	27.	9.	6.	7.	12.	9.	4.	2.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-6

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

10 METER LEVEL CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(12/01/82 TO 2/28/83)

WIND SPEED MAX METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
	7	4	1	1	2	3	4	6	11	8	10	4	7	6	6	7	0	
GT 11. :	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0 :	2
8. - 11. :	0	0	0	0	0	0	0	0	5	3	12	0	0	0	0	0	0 :	20
5. - 8. :	6	0	0	0	0	0	0	7	38	51	17	0	2	3	1	9	0 :	134
3. - 5. :	5	2	0	0	0	1	16	35	86	128	37	9	3	23	36	26	0 :	407
1. - 3. :	13	4	1	10	46	83	108	76	87	93	88	43	33	101	88	33	0 :	907
LT 1. :	31	16	23	21	47	35	54	33	32	53	81	33	35	27	49	43	0 :	613
TOTAL :	55	22	24	31	93	119	178	151	250	328	235	85	73	154	174	111	0	2083
PERCENT	3.	1.	1.	1.	4.	6.	9.	7.	12.	16.	11.	4.	4.	7.	8.	5.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-7

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

30 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(12/01/82 TO 2/28/83)

WIND SPEED MAX METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
	9	5	1	2	3	4	6	9	15	11	14	6	10	8	8	10	0	
GT 11. :	0	0	0	0	0	0	0	0	7	2	14	0	0	0	0	0	0 :	23
8. - 11. :	1	0	0	0	0	0	0	4	26	32	11	0	2	1	1	9	0 :	87
5. - 8. :	6	1	0	0	0	0	6	16	41	98	35	5	3	10	14	14	0 :	249
3. - 5. :	5	4	0	0	2	16	55	57	96	121	33	13	11	51	52	23	0 :	539
1. - 3. :	10	4	3	9	27	68	72	71	56	51	39	33	57	66	69	38	0 :	673
LT 1. :	20	18	24	23	23	28	39	27	32	27	44	37	53	28	59	30	0 :	512
TOTAL :	42	27	27	32	52	112	172	175	258	331	176	88	126	156	195	114	0	2083
PERCENT	2.	1.	1.	2.	2.	5.	8.	8.	12.	16.	8.	4.	6.	7.	9.	5.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-8

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

60 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(12/01/82 TO 2/28/83)

WIND SPEED		WIND DIRECTION																	
		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX METERS/SEC		10	7	6	16	3	6	7	10	16	13	16	8	12	8	9	11	0	
GT 11.	:	0	0	0	1	0	0	0	0	16	18	20	0	2	0	0	2	0 :	59
8. - 11.	:	6	0	0	0	0	0	0	5	34	59	24	1	0	4	4	11	0 :	148
5. - 8.	:	12	4	1	0	0	1	5	23	55	121	44	6	3	14	21	14	0 :	324
3. - 5.	:	9	5	0	1	1	11	42	76	109	97	35	16	13	49	80	32	0 :	576
1. - 3.	:	22	10	10	18	23	44	69	57	72	58	35	35	67	75	87	48	0 :	730
LT 1.	:	17	11	13	13	16	19	15	21	14	9	18	30	28	20	26	20	0 :	290
TOTAL	:	66	30	24	33	40	75	131	182	300	362	176	88	113	162	218	127	0	2127
PERCENT		3.	1.	1.	2.	2.	4.	6.	9.	14.	17.	8.	4.	5.	8.	10.	6.	0.	100.

0 = NO OBSERVATIONS

(12/30/83-RPI)

Table 1.3.10-9

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

10 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(3/01/83 TO 5/31/83)

WIND SPEED MAX METERS/SEC	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
	6	4	8	4	3	3	4	6	9	8	11	7	4	7	6	6	0	
GT 11. :	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0 :	1
8. - 11. :	0	0	1	0	0	0	0	0	5	4	9	0	0	0	0	0	0 :	19
5. - 8. :	2	0	0	0	0	0	0	6	44	69	38	5	0	3	13	15	0 :	195
3. - 5. :	10	8	2	2	1	1	10	29	75	135	66	18	24	30	88	44	0 :	543
1. - 3. :	28	28	14	20	23	51	49	63	65	82	92	52	55	78	106	76	0 :	882
LT 1. :	17	12	29	22	35	31	38	26	50	48	53	21	16	19	24	26	0 :	467
TOTAL :	57	48	46	44	59	83	97	124	239	338	259	96	95	130	231	161	0	2107
PERCENT	3.	2.	2.	2.	3.	4.	5.	6.	11.	16.	12.	5.	5.	6.	11.	8.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-10

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

30 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(3/01/83 TO 5/31/83)

WIND SPEED MAX METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
	7	11	7	5	4	4	6	9	12	11	15	11	10	6	10	10	0	
GT 11. :	0	1	0	0	0	0	0	0	2	2	5	1	0	0	0	0	0 :	11
8. - 11. :	0	0	0	0	0	0	0	3	23	50	38	8	1	0	8	3	0 :	134
5. - 8. :	7	5	2	1	0	0	2	7	48	103	66	13	11	15	39	38	0 :	357
3. - 5. :	10	11	2	5	2	13	26	39	54	79	50	32	43	62	100	63	0 :	591
1. - 3. :	26	19	16	24	31	54	52	44	60	43	51	47	47	55	66	63	0 :	698
LT 1. :	13	12	19	20	15	15	24	18	28	30	27	25	21	13	16	26	0 :	322
TOTAL :	56	48	39	50	48	82	104	111	215	307	237	126	123	145	229	193	0	2113
PERCENT	3.	2.	2.	2.	2.	4.	5.	5.	10.	15.	11.	6.	6.	7.	11.	9.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-11

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

60 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(3/01/83 TO 5/31/83)

WIND SPEED METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX	8	7	12	6	5	4	7	10	14	12	16	15	7	11	10	11	0	
GT 11. :	0	0	1	0	0	0	0	0	6	7	23	2	0	1	0	1	0 :	41
8. - 11. :	2	0	0	0	0	0	0	6	39	93	44	5	0	3	11	13	0 :	216
5. - 8. :	12	5	5	1	1	0	11	18	45	103	70	18	18	17	51	37	0 :	412
3. - 5. :	21	13	8	9	5	13	27	43	48	65	54	22	43	77	107	71	0 :	626
1. - 3. :	33	20	14	18	26	42	48	56	53	48	35	54	44	48	63	58	0 :	660
LT 1. :	9	11	5	11	15	17	15	9	17	15	22	11	12	16	19	9	0 :	213
TOTAL :	77	49	33	39	47	72	101	132	208	331	248	112	117	162	251	189	0	2168
PERCENT	4.	2.	2.	2.	2.	3.	5.	6.	10.	15.	11.	5.	5.	7.	12.	9.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-12

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

10 METER LEVEL

CATHEDRAL BLUFFS SHALE

STATION AA23 PERIOD(6/01/83 TO 8/31/83)

WIND SPEED METERS/SEC		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX		4	5	4	4	5	4	4	5	7	8	8	8	5	6	7	5	0	
GT 11.	:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0
8. - 11.	:	0	0	0	0	0	0	0	0	0	2	3	1	0	0	0	0	0 :	6
5. - 8.	:	0	1	0	0	1	0	0	2	23	90	29	8	1	10	6	2	0 :	173
3. - 5.	:	7	4	4	1	1	6	14	48	66	118	75	24	7	13	16	24	0 :	428
1. - 3.	:	42	16	13	26	61	111	141	92	77	99	132	40	30	34	66	52	0 :	1032
LT 1.	:	27	21	21	24	32	33	48	40	43	66	46	28	17	14	26	19	0 :	505
TOTAL	:	76	42	38	51	95	150	203	182	209	375	285	101	55	71	114	97	0	2144
PERCENT		4.	2.	2.	2.	4.	7.	9.	8.	10.	17.	13.	5.	3.	3.	5.	5.	0.	100.

0 = NO OBSERVATIONS

(12/30/83-RPI)

Table 1.3.10-13

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

30 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(6/01/83 TO 8/31/83)

WIND SPEED MAX METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
	6	7	5	5	7	6	7	9	12	10	12	12	7	9	10	7	0	
GT 11. :	0	0	0	0	0	0	0	0	1	0	3	1	0	0	0	0	0 :	5
8. - 11. :	0	0	0	0	0	0	0	2	20	69	18	3	0	10	2	0	0 :	124
5. - 8. :	1	1	2	1	2	5	17	36	67	103	42	11	5	10	10	11	0 :	324
3. - 5. :	12	11	3	5	12	51	83	55	55	90	72	28	14	23	25	26	0 :	565
1. - 3. :	36	14	15	27	54	101	100	57	51	45	62	34	33	37	61	44	0 :	771
LT 1. :	25	17	16	13	27	25	27	23	34	33	23	33	18	12	16	16	0 :	358
TOTAL :	74	43	36	46	95	182	227	173	228	340	220	110	70	92	114	97	0	2147
PERCENT	3.	2.	2.	2.	4.	8.	11.	8.	11.	16.	10.	5.	3.	4.	5.	5.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-14

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

60 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(6/01/83 TO 8/31/83)

WIND SPEED METERS/SEC	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX	6	7	6	5	8	6	8	11	12	12	12	14	8	10	9	8	0	
GT 11.	0	0	0	0	0	0	0	1	3	9	3	2	0	0	0	0	0	18
8. - 11.	0	0	0	0	1	0	3	12	42	93	22	6	1	12	4	1	0	197
5. - 8.	2	1	2	1	1	10	25	45	68	113	51	12	5	10	8	20	0	374
3. - 5.	14	12	7	7	9	30	93	75	51	67	72	23	26	21	37	26	0	570
1. - 3.	37	18	15	26	40	58	91	80	54	46	40	35	39	41	59	47	0	726
LT 1.	16	15	9	13	17	25	19	16	25	17	14	25	25	14	14	10	0	274
TOTAL	69	46	33	47	68	123	231	229	243	345	202	103	96	98	122	104	0	2159
PERCENT	3.	2.	2.	2.	3.	6.	11.	11.	11.	16.	9.	5.	4.	5.	6.	5.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-15

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

10 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(9/01/83 TO 11/30/83)

WIND SPEED METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX	5	4	3	2	3	2	3	4	9	9	10	8	6	7	8	8	0	
GT 11.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8. - 11.	0	0	0	0	0	0	0	0	4	11	11	1	0	0	2	2	0	31
5. - 8.	1	0	0	0	0	0	0	0	28	61	54	4	6	10	4	12	0	180
3. - 5.	11	5	1	0	1	0	5	19	62	147	91	23	13	26	35	35	0	474
1. - 3.	20	26	6	27	41	76	72	75	56	120	108	39	36	51	86	65	0	904
LT 1.	24	18	24	38	32	33	45	26	51	81	64	28	23	18	21	21	0	547
TOTAL	56	49	31	65	74	109	122	120	201	420	328	95	78	105	148	135	0	2136
PERCENT	3.	2.	1.	3.	3.	5.	6.	6.	9.	20.	15.	4.	4.	5.	7.	6.	0.	100.

0 = NO OBSERVATIONS

(12/30/83-RPI)

Table 1.3.10-16

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

30 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23   PERIOD(9/01/83 TO 11/30/83)

WIND SPEED METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX	7	5	3	3	5	5	5	8	12	14	15	11	9	10	12	12	0	
GT 11. :	0	0	0	0	0	0	0	0	5	15	7	1	0	0	3	1	0 :	32
8. - 11. :	0	0	0	0	0	0	0	1	29	45	32	2	4	5	6	5	0 :	129
5. - 8. :	3	2	0	0	1	1	1	22	47	152	63	16	12	22	14	15	0 :	371
3. - 5. :	13	6	1	1	6	20	36	40	64	80	44	21	21	47	62	41	0 :	503
1. - 3. :	36	16	11	27	31	68	70	54	56	56	44	39	33	38	63	43	0 :	685
LT 1. :	24	18	18	22	19	30	34	37	45	33	39	27	24	21	17	25	0 :	433
TOTAL :	76	42	30	50	57	119	141	154	246	381	229	106	94	133	165	130	0	2153
PERCENT	4.	2.	1.	2.	3.	6.	7.	7.	11.	18.	11.	5.	4.	6.	8.	6.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-17

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

60 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(9/01/83 TO 11/30/83)

	WIND DIRECTION																	
WIND SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX METERS/SEC	8	6	4	2	6	6	6	9	14	16	16	12	10	11	13	12	0	
GT 11. :	0	0	0	0	0	0	0	0	11	34	9	1	0	1	2	2	0 :	60
8. - 11. :	1	0	0	0	0	0	0	3	45	72	43	6	10	7	5	8	0 :	200
5. - 8. :	4	5	0	0	1	1	2	27	59	156	57	10	11	25	23	26	0 :	407
3. - 5. :	14	6	2	0	6	16	38	60	60	59	43	30	26	43	70	46	0 :	519
1. - 3. :	35	13	12	15	21	44	57	67	61	66	36	29	40	41	57	42	0 :	636
LT 1. :	21	9	13	14	23	23	28	28	29	27	24	26	19	22	23	13	0 :	342
TOTAL :	75	33	27	29	51	84	125	185	265	414	212	102	106	139	180	137	0	2164
PERCENT	3.	2.	1.	1.	2.	4.	6.	9.	12.	19.	10.	5.	5.	6.	8.	6.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-18

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

10 METER LEVEL CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(12/01/82 TO 11/30/83)

WIND SPEED METERS/SEC	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
MAX	7	5	8	4	5	4	4	6	11	9	11	8	7	7	8	8	0	
GT 11. :	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0 :	3
8. - 11. :	0	0	1	0	0	0	0	0	14	20	35	2	0	0	2	2	0 :	76
5. - 8. :	9	1	0	0	1	0	0	15	133	271	138	17	9	26	24	38	0 :	682
3. - 5. :	33	19	7	3	3	8	45	131	289	528	269	74	47	92	175	129	0 :	1852
1. - 3. :	103	74	34	83	171	321	370	306	285	394	420	174	154	264	346	226	0 :	3725
LT 1. :	99	67	97	105	146	132	185	125	176	248	244	110	91	78	120	109	0 :	2132
TOTAL :	244	161	139	191	321	461	600	577	899	1461	1107	377	301	460	667	504	0	8470
PERCENT	3.	2.	2.	2.	4.	5.	7.	7.	11.	17.	13.	4.	4.	5.	8.	6.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-19

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

30 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(12/01/82 TO 11/30/83)

WIND SPEED MAX METERS/SEC	WIND DIRECTION N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
	9	11	7	5	7	6	7	9	15	14	15	12	10	10	12	12	0	
GT 11. :	0	1	0	0	0	0	0	0	15	19	29	3	0	0	3	1	0 :	71
8. - 11. :	1	0	0	0	0	0	0	10	98	196	99	13	7	16	17	17	0 :	474
5. - 8. :	17	9	4	2	3	6	26	81	203	456	206	45	31	57	77	78	0 :	1301
3. - 5. :	40	32	6	11	22	100	200	191	269	370	199	94	89	183	239	153	0 :	2198
1. - 3. :	108	53	45	87	143	291	294	226	223	195	196	153	170	196	259	188	0 :	2827
LT 1. :	82	65	77	78	84	98	124	105	139	123	133	122	116	74	108	97	0 :	1625
TOTAL :	248	160	132	178	252	495	644	613	947	1359	862	430	413	526	703	534	0	8496
PERCENT	3.	2.	2.	2.	3.	6.	8.	7.	11.	16.	10.	5.	5.	6.	8.	6.	0.	100.

0 = NO OBSERVATIONS

Table 1.3.10-20

FREQUENCY TABLE OF WIND SPEED BY DIRECTION

60 METER LEVEL

CATHEDRAL BLUFFS SHALE OIL

STATION AA23 PERIOD(12/01/82 TO 11/30/83)

WIND SPEED MAX METERS/SEC	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VAR	TOTAL
	10	7	12	16	8	6	8	11	16	16	16	15	12	11	13	12	0	
GT 11. :	0	0	1	1	0	0	0	1	36	68	55	5	2	2	2	5	0 :	178
8. - 11. :	9	0	0	0	1	0	3	26	160	317	133	18	11	26	24	33	0 :	761
5. - 8. :	30	15	8	2	3	12	43	113	227	493	222	46	37	66	103	97	0 :	1517
3. - 5. :	58	36	17	17	21	70	200	254	268	288	204	91	108	190	294	175	0 :	2291
1. - 3. :	127	61	51	77	110	188	265	260	240	218	146	153	190	205	266	195	0 :	2752
LT 1. :	63	46	40	51	71	84	77	74	85	68	78	92	84	72	82	52	0 :	1119
TOTAL :	287	158	117	148	206	354	588	728	1016	1452	838	405	432	561	771	557	0	8618
PERCENT	3.	2.	1.	2.	2.	4.	7.	8.	12.	17.	10.	5.	5.	7.	9.	6.	0.	100.

0 = NO OBSERVATIONS

NOISE

1.4 Noise

No noise measurements are being collected during the Interim Monitoring Period.